

THE HISTORY OF THE RELATIONSHIP BETWEEN THE CONCEPT AND  
TREATMENT OF PEOPLE WITH DOWN'S SYNDROME IN BRITAIN AND  
AMERICA FROM 1866 TO 1967.

BY

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## Abstract

This thesis fills a gap in the history of mental handicap by focusing on a specific mentally handicapping condition, Down's syndrome, in Britain and America. This approach has facilitated an examination of how various scientific and social developments have actually affected a particular group of people with handicaps.

The first chapter considers certain historiographical problems this research has raised.

The second analyses the question of why Down's syndrome, which has certain easily identifiable characteristics associated with it, was not recognised as a distinct condition until 1866 in Britain.

Subsequent chapters focus on the concept and treatment of Down's syndrome by the main nineteenth and twentieth century authorities on the disorder.

The third chapter concentrates on John Langdon Down's treatment of 'Mongolian idiots' at the Royal Earlswood Asylum.

The fourth chapter examines Sir Arthur Mitchell's study of 'Kalmuc idiots' in private care.

The fifth considers how Down's and Mitchell's theories were developed by later investigators, with particular reference to George Shuttleworth's work. Archive materials from the Royal Albert, Royal Earlswood and Royal Scottish National Institutions are used.

The sixth focuses on the late nineteenth century American concept and treatment of people with Down's syndrome through an analysis of the work of Albert Wilmarth.

The seventh discusses a germinal/syphilitic theory of the condition by a British physician, George Sutherland, and traces its treatment consequences in both Britain and America.

The eighth examines Francis Crookshank's concept and the hormonal therapy people with Down's syndrome consequently received.

The ninth on Lionel Penrose's investigations, incorporates new material from the Penrose file at University College.

The tenth describes the relationship between the development of Adrien Bleyer's concept and the question of raised parental age. The problems of screening and automatic abortion (1967) are finally discussed.

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## CHAPTER ONE

### INTRODUCTION

This thesis traces the changes in the concept and treatment of people with Down's syndrome in Britain and America from 1866 to 1967.

1866 is a very convenient starting date; it was in this year that John Langdon Down classified people with Down's syndrome as Mongols, and in so doing formulated a concept of the syndrome which was to exert an enormous influence on the way in which it was perceived over many decades to come.

1967 was the year when an Act of Parliament first permitted the abortion of a foetus with an extra chromosome. The destruction of these foetuses was undoubtedly the major consequence of the determination in 1959 that Down's syndrome occurred as a result of non-disjunction.

While texts exist which examine the historical treatment of insanity in these two countries, there is no comparable work on mental handicap. A British / American comparison is actually particularly appropriate for an examination of the history of this subject: a common origin of the study and treatment of 'idiots' in the middle of the nineteenth century can be traced and it is then possible to attempt to identify those factors which have led to the development of

particular features in the two societies.

It is believed that this thesis also differs from other histories of mental handicap, which have generally centred on institutional and legal landmarks or educational reforms,<sup>1</sup> in that it attempts to explain developments in the treatment of a particular group of people with handicaps in terms of the contemporary scientific theories of abnormality. This has been considered to be a valid approach because historically it was the physician's medical/aetiological beliefs which largely determined the intellectual, social, physical/medical and moral treatment which the different 'types' of people he treated, received. It is also therefore hoped that an accurate representation of the history of Down's syndrome has been achieved by making the focus of each chapter a particular doctor(s) and his(their) patients with Down's syndrome. The important fact that all the physicians who played key roles in shaping the understanding of the condition were Anglo-Saxon/Aryan, middle-class men has been highlighted by this method.

People with Down's syndrome were frequently to be found in institutions which had been established for the education / training of 'idiots', and I have therefore considered the important questions of how the occurrence of abnormal physical and mental characteristics were interpreted in these asylums and to what extent the contemporary explanatory frameworks

shaped the institutional training/educational methods which were considered appropriate.

Archive sources from the Royal Earlswood Hospital, Royal Albert and Royal Scottish National Hospital have greatly aided the consideration of these questions by providing the answers to certain specific problems: the number and type of patients admitted; the reasons for the diversity or homogeneity of the asylum population; the features of the asylum which could have determined/influenced classification methods; the means by which an 'order' of mental condition was determined; the relationship between the aetiological data collected and the treatments considered appropriate for the patients; the relationship between the admission systems, the regimes and the annual mortality of the patients; and the similarities and differences between the conceptualisations of Down's syndrome and the asylum regimes.

Contemporary historians of special education, for example Michael Barrett,<sup>2</sup> justify their omission of the medical conceptualisations of mental handicap by the adoption of a sociological model of knowledge, which contains the assumption that all terminology and classification systems are socially-created; the concept of Down's syndrome and that of retardation are, therefore, seen as of little value outside the confines of a particular clinical setting, and, in addition to

this the specific experiences of people with Down's syndrome are not considered because of the possibility that terminological homology through time cannot be presumed.

This way of perceiving those with handicaps has grown out of the antipsychiatric movement which has recently been discussed by Bynum et al. in their "Introduction" to The Anatomy of Madness.<sup>3</sup> They describe how certain protagonists of this movement, like Thomas Szasz, have argued that psychiatric diagnoses should not be used to explain the behaviour of deviants.<sup>4</sup> However, Szasz's arguments are not readily applicable to those with mental handicaps, for while altruistic or criminal behaviour may be deemed to be at least partially independent of the physical state of the human brain, intelligence and the capacity to speak etc. cannot be viewed in a similar way. A denial of the existence of the problems associated with brain damage/abnormality probably does not help the handicapped, and definitely places a very heavy burden on them, as well as their parents<sup>5</sup> and their teachers.

Although it has been fully appreciated that people with Down's syndrome are first and foremost individuals who differ in an infinite number of ways from one another, it is a fact, too, that the presence of an extra chromosome also results in the occurrence of a syndrome with certain clearly identifiable characteristics associated with it: speech problems in

the affected person; symptoms of cardiac abnormalities etc. And it is the interpretations of these phenomena which have social dimensions, not the phenomena themselves. In addition, it should be noted that the description of the person with Down's syndrome as a 'Mongolian idiot' did not only occur within a specific institutional/clinical setting, but, in fact, a similar term, 'Kalmuc idiot' was applied to the person with the condition by Sir Arthur Mitchell, a contemporary investigator of the 'insane', who had observed these people within the community.<sup>6</sup>

Institutional training, of course, was not the only form of treatment which people with Down's syndrome have received. They have also been the victims of eugenics enthusiasts who have sometimes wished not simply to confine them in institutions, but to sterilise or even kill them. It has therefore been necessary to examine the eugenics movements in Britain and America in this thesis. Histories of these movements do, in fact, sometimes consider both the concept of mental handicap and the eugenic treatment deemed appropriate. However, what they generally do not do, is to analyse how far the scientific conceptualisation of the handicapped was actually determined by the scientist's stance on the questions of sterilisation and segregation. Thus we see<sup>7</sup> Kevles, in his book, In the Name of Eugenics uncritically accepting the results of the researcher's,

Lionel Penrose's, analyses of the aetiology of Down's syndrome, and Haller in Eugenics. Hereditarian Attitudes<sup>8</sup> in American Thought assuming that the theories of the geneticist, Jennings, were uninfluenced by his ideological beliefs.

In this thesis, I specifically focus on the way in which Penrose arrived at the concept of Down's syndrome which weakened the case for the sterilisation of the 'feeble-minded'. Unpublished material from the Lionel Penrose file at University College has been used to answer the questions of how Penrose began his investigations of Down's syndrome; what earlier theories he was influenced by and consequently what assumptions he made about the aetiology of Down's syndrome; and when he made these assumptions - before or after he carried out his statistical tests.

In addition to focusing on certain questions while using archive sources, a problem-orientated approach to the research has also generally been adopted so that various historical questions have been examined in each chapter.

In Chapter Two I focus on the formal identification of Down's syndrome as a specific variety of 'idiocy' and examine why the syndrome was not recognised as a distinct condition until the middle of the nineteenth century. What factors (demographic, philosophical/scientific, institutional) can be considered to have been responsible for drawing

attention to the person with Down's syndrome at this particular time?

In the third chapter I examine specifically John Langdon Down's study and treatment of the 'Mongol' at Earlswood Asylum and attempt to answer the questions of how Down's study and characterisations related to the treatments at this institution, and what relationship there was between Down's aetiological theories and the treatment advocated.

In Chapter Four I focus on the conception and treatment which was believed appropriate for 'idiots' by Sir Arthur Mitchell, the other nineteenth century authority who identified Down's syndrome through his work with the 'insane' in private care. The question of how Mitchell's conception of Down's syndrome was determined by the fact that he studied people with Down's syndrome in society as opposed to the artificial environment of the 'idiot asylum' is considered.

The extent to which Down's and Mitchell's work influenced certain British superintendents is discussed in Chapter Five, and particular attention is paid to the ideas of George Shuttleworth, who had been Down's assistant at Earlswood and subsequently became the superintendent of the Royal Albert Asylum.

In the following chapter I focus on the first original American conception of Down's syndrome by the pathologist and assistant superintendent of the



Pennsylvania School for the Feeble-minded, Albert Wilmarth. The relationship between his theory of the aetiology of Down's syndrome and its treatment, and his characterisations of people with the syndrome and their treatment are examined. The influence of the ideas of Wilmarth and his colleagues from this particular institution on the perception of the 'feeble-minded' in the rest of America and Britain is also considered.

In Chapter Seven I focus on the relationship between Sutherland's concept of Down's syndrome as a syphilitic condition and the treatment which people with the syndrome received in Britain and America in the late nineteenth and early twentieth centuries.

In the next chapter I examine how Francis Crookshank revived and separated the theories underlying John Langdon Down's conception of the syndrome from the original moral environmental framework in which it had been formulated. The rationale for Crookshank's treatment of the person with Down's syndrome is also discussed.

In the ninth chapter on Lionel Penrose's work, I examine the association between his concept of Down's syndrome and the question of the sterilisation of people with handicaps in Britain in the early 1930s.

In the tenth chapter, I discuss the recognition of the possibility that Down's syndrome might be caused by non-disjunction in 1934 by the American, Adrien Bleyer, and the reasons for the non-acceptance of this theory by

the other major authorities on the syndrome until 1959. The treatment consequences following the establishment that Down's syndrome was generally the result of an extra chromosome are finally examined.

This individual-physician and problem-centred approach could have been well complemented by the inclusion of what people with Down's syndrome in Britain and America said about their own treatment, a technique which certain books on the history of madness have<sup>9</sup> adopted for people who were judged to be insane. Unfortunately, this was impossible because there was virtually no material of this sort available, the only<sup>10</sup> exception being The Diary of Nigel Hunt, which was written in England in 1966. Nigel Hunt, however, does not describe any treatment which he received as a result of being diagnosed as a 'mongol', and one is left with the impression that loving parents managed to shield him from the most negative consequences of his condition. Indeed the incidents, holidays etc. which he relates in his book are virtually indistinguishable from those which could have been experienced by any child or teenager without Down's syndrome; the single exception being Hunt's claim to have seen his dead mother several times (his father was convinced that these were paranormal occurrences and not his son's imagination).

Another English book also exists, Child of a  
<sup>11</sup>System which was written by a person (Noele Arden),

who had been labelled as mentally deficient. In 1948 Noele Arden had been sent to Rampton Special Hospital at the age of sixteen; the savage treatment she received there is almost unbelievable. However, as she does not have Down's syndrome I do not propose to discuss her experiences in detail in this thesis, but simply to take note of the kind of treatment which some of the 'mentally deficient' were receiving in an English institution in the middle of the twentieth century.

The interpretation of what I, a person writing in the late twentieth century, would regard as the abuse of the person with mental handicap has actually been a recurring problem throughout this thesis. Should I always look to prevailing scientific theories/norms and values about disability/children/race to explain brutal treatment, or do I see it as made up of the actions of selfish, powerful individuals who had the capacity to put themselves in their victim's place, but chose not to?<sup>12</sup> How much importance should I attach to the early childhood experiences of the physician who mistreated children in his care?<sup>13</sup> How much weight should I place on gene-based behavioural impulses in interpreting their actions?

While there are no simple solutions to any of these questions, my personal belief is that it is not possible to write a history of Down's syndrome in a neutral, dispassionate way which neglects the existence of suffering, injustice etc.. The subject strikes at the

very heart of morality - how helpless, powerless people have been treated, and therefore where there are clear examples of kindness or cruelty I have identified them as such.

#### A Note on Terminology

I have used the terms 'Mongol', 'Kalmuc', 'idiot', 'imbecile', 'feeble-minded', as well as person with Down's syndrome and person with mental handicap. Although the first two terms have now been recognised to be completely inappropriate as means of describing the person with Down's syndrome, they were valid medical usage until the 1960s. Using them is solely for historical convenience and does not have any derogatory connotation.

#### NOTES: CHAPTER ONE

1. See for example M. Barratt "From Education to Segregation" Ph.D. thesis, University of Lancaster, 1987.

2. Ibid. Like the historians of special education, certain analysts of psychiatric institutions have not concerned themselves with how far the asylum phenomena related to what was perceived as wrong with the individuals who were admitted to them. For example Andrew Scull has adopted this sociological perspective in order to examine both historical and contemporary dimensions of asylums. See Andrew Scull Museums of Madness (London: Allen Lane, 1979); Andrew Scull Decarceration, 2nd edn. (Oxford: Polity Press, 1984).

See also Tony Booth "Labels and Their Consequences" in Current Approaches to Down's Syndrome edited by David Lane and Brian Stratford (Holt, Rinehart and Winston Ltd., 1985).

3. W. F. Bynum, Roy Porter and M. Shepherd "Introduction" in The Anatomy of Madness. Essays in the History of Psychiatry, vol.1, edited by W. F. Bynum et al (London: Tavistock Publications, 1985) pp. 1-20. See also Peter Sedgwick Psychopolitics (London: Pluto Press, 1981).

4. See Thomas Szasz The Manufacture of Madness (London: Paladin, 1973); and Thomas Szasz Law, Liberty and Psychiatry (London: Routledge and Kegan Paul, 1974).

5. Recent letters to the Down's Syndrome Association from parents of children with Down's syndrome demonstrate that they wish the problems associated with the syndrome to be fully acknowledged so that they are not made to feel like failures if their children are very slow at reaching developmental milestones. For example, a mother from Stoke-On-Trent writes:

"Stuart is nearly six years old. He is not one of the more gifted Down's children, in fact the blunt truth is that he is severely retarded.

Despite all our great efforts to help him overcome his handicap, his achievements compared with many others are very limited. He still cannot talk, dress or undress himself and has only recently learnt to take himself to the toilet.

What I would like to see in the Down's News is more articles about children like Stuart. I read page after page of success stories in every edition but little if anything is written to encourage parents like myself. So come on, let's have a more balanced magazine with articles covering the whole range of our children and their abilities. I look forward to reading the News

without feeling the odd one out."

Another mother from Birmingham writes:

"Enclosed is a ten pound postal order for renewing my membership. I'm sorry it's taken so long but I am in two minds whether or not to join again.

The Association I must say is very good for families with a Down's who is very intelligent in it. Whenever I go to any meetings, the Association only ever discusses the reading or writing or exam results or how to make them better. They never write or say anything about low graded Down's. My daughter Kelly is 13 years old but mentally only 2 years old and I have never read anything from the Association that had anything to do with her, they only seem to like successes. I'm sorry if I sound very bitter, but it's how I feel very let down by the Association."

Reprinted from D.S.A. NEWS (G.B.) 55 (1989): 12.

6. John Fraser and Arthur Mitchell "Kalmuc Idiocy: Report of a Case with Autopsy with Notes on 62 Cases by Arthur Mitchell" Journal of Mental Science 22 (1876): 169-180.

7. D. J. Kevles In the Name of Eugenics. Genetics and the Uses of Human Heredity (Harmondsworth: Penguin Books, 1986).

8. M. H. Haller Eugenics. Hereditarian Attitudes in American Thought (New Brunswick: Rutgers University Press, 1984).

9. Roy Porter A Social History of Madness. Stories of the Insane (London: Weidenfeld and Nicolson, 1987). Dale Peterson A Mad People's History of Madness (Pittsburgh: University of Pittsburgh Press, 1982).

10. Nigel Hunt The World of Nigel Hunt (Ballater: Asset Recycling Ltd., 1966).

11. Noele Arden Child of a System (London: Quartet Books, 1977).

12. Lifton postulates that an intimate relationship can develop between omnipotence and sadism. R. J. Lifton Nazi Doctors: A Study in the Psychology of Evil (London: Papermac, 1987) pp.447-451.

It is possible that impulses towards omnipotence in certain doctors attracted them to the institutions for the 'feeble-minded'. There is no evidence, however, that sadism is an inevitable response in everyone placed in a position to dominate and control other human beings: some individuals, undoubtedly, do not want this power, and others may have sadistic impulses, but, most crucially, do not act on them.

Lifton sees professional groups as having a

special capacity for evil through what he terms 'doubling' - a process by which a prior, humane self can be joined by a "professional" self willing to ally itself with a destructive project, which involves harming or even killing others. Ibid. pp.464-5.

13. Alice Miller would consider these to be all important. In her eyes it is inevitable that the person subjected to humiliations in childhood will later express his suppressed feelings by mistreating the weak. See Alice Miller For Your Own Good. Hidden Cruelty in Child-Rearing and Roots of Violence (London: Virago Press, 1983).

## CHAPTER TWO

### THE IDENTIFICATION OF THE SYNDROME

Down's syndrome is named after Dr. John Langdon Down (1828-1896), who, in his paper entitled<sup>1</sup> "Observations on an Ethnic Classification of Idiots" (1866), used the racial concept of the Mongol to describe certain of the patients at the Royal Earlswood Asylum. However, there is evidence from one of Down's earlier papers, "On the Condition of the Mouth in Idiocy"<sup>2</sup> (1862), that he had recognized the existence of the syndrome a few years before.

John Langdon Down was born on November 18th, 1828, at Torpoint, Cornwall. His father was of Irish descent and his mother a member of a well known family, the Langdons of Devon. His early education was at a dames school, and then at the age of 11, he attended the Devonport Classical and Mathematical School, where he was reported to be a bright pupil and regularly at the top of his form. After two years he left school to help in his father's apothecary's business. At 18 he went to London, and after a brief period with a surgeon in Whitechapel he entered the laboratory of the Pharmaceutical Society. His intention was to become a scientist but his progress was halted by a call back to the family business and a period of ill-health.

After his father died in 1848, Down decided to



study medicine, having been persuaded that science was too precarious a career. On October 1st, 1853, at the age of 25 he became a medical student at the London Hospital. In 1856 he obtained the Licence of the Society of Apothecaries and Membership of the Royal College of Surgeons.

In 1858, after obtaining the M.B. degree and a gold medal in physiology, and having held several posts at the London Hospital including those of medical tutor, resident accoucher and lecturer in comparative anatomy he applied for the post of Medical Superintendent at Earlswood Asylum.<sup>3</sup> An important question, which has been asked, is why Down's syndrome, which has certain easily identifiable characteristics associated with it, was not recognized as a distinct condition until this time.

<sup>4</sup> Previous, very brief attempts to answer this question have all contained the assumption that the lack of any earlier identification of the syndrome as a particular variety of congenital abnormality was purely a result of a much smaller number of affected people before this time. Mirkinson (1968) stated that he was unable to find a single historical artistic portrayal of a person with Down's syndrome, and speculated that this might be a consequence of a lower incidence of the condition before the advent of modern industrialisation, or alternatively a reflection of a shorter life span and younger maternal age. Cone (1968) and Zellweger (1968) subsequently both identified paintings which possibly

depicted children with Down's syndrome. Richards (1968), however, supported the suggestion that Down's syndrome was a rare disease until recent times because of smaller populations, differences in the population age-structure and higher infant mortality.

The suggestion that differences in the population age structure would lead to a smaller number of babies being born in the age-range when the risk of Down's syndrome is high, and therefore result in a lower incidence of Down's syndrome is problematic because, even today, the largest number of children with Down's syndrome are born to young mothers, because they have by far the larger number of children.

The theory that before the mid-nineteenth century, the higher infant mortality, particularly for children with congenital abnormalities could account for the smaller number of cases of Down's syndrome does not take account of the fact that infant mortality would have varied considerably between areas; its level being largely dependent on the population density and the length of breastfeeding. Children with Down's syndrome (like all infants) would have been most likely to survive in areas of low population density and where breastfeeding continued intensely for a long period of time. This is because exposure to many disease carriers and/or the failure to receive the passive immunity which breast feeding naturally confers increases the

likelihood of death in infancy.<sup>5</sup>

The third suggestion that the increase in population due to modern industrialisation was a factor responsible for the increased incidence of Down's syndrome ignores the relationship between urban population size and mortality rates; even market towns of a very modest size had high death rates, particularly high infant mortality rates, because of the proximity of man to man, impure water, and the inability to remove animal and vegetable waste products, which created an environment in which lethal diseases were widely prevalent.<sup>6</sup>

The reason that a very low incidence of Down's syndrome in a population would have made identification unlikely is because of the probability that nobody would have had the opportunity to observe more than one affected person. However, no-one has considered the fact that there are forms of Down's syndrome which run in families (caused by certain translocations) and which are apparently not associated with raised parental age; there is no reason to suppose that these would not have occurred in early societies (it has been estimated that about 2 to 3% of people with Down's syndrome today have a translocated chromosome), and therefore made it possible to view people with Down's syndrome as a special type of person. In fact, in a small early population the presence of a family with a tendency to produce offspring with Down's syndrome would have made

affected individuals very conspicuous. Consanguineous marriages between translocation carriers in such a population would, of course, have further increased the incidence of Down's syndrome. Another possible way also exists in which a large number of cases of Down's syndrome could have arisen in a population. This would be through a cultural system of arranged marriages in which the husband would generally be a number of years older than the wife.

A population where there may have been an unusually large number of people with Down's syndrome was the Olmec culture, the people of which lived on and around the Gulf coast of Mexico from about 1500 B.C. to 300 A.D..<sup>7</sup> Milton and Gonzalo have considered some surviving quartz figures and masks from this culture to be representations of people with Down's syndrome, because they have slanting eyes/well marked epicanthic folds, round faces with open mouths and a drawn down lower lip, short broad-bridged noses and brachycephalic heads with flattened occiputs. In addition, the figures' bodies are generally obese and have no genitalia.

The Olmec apparently believed that the people whom these figures and masks represented, had resulted from the mating of a human being with their main totem, the jaguar.

Obviously, it cannot be said for certain that the artifacts are people with Down's syndrome, and therefore

that the Olmec artists were the first people to identify Down's syndrome as a specific entity. If, however, there were an unusually large incidence of Down's syndrome in this population this could be due to features of the population which reduced mortality due to disease, for example adequate level of nutrition, a pure water supply, and remoteness, which would have led to a low level of contact with serious infectious disease carriers and vectors; and/or to the presence of translocation carriers; and/or to the cultural practice of arranged marriages.

Another way in which Down's syndrome could have been identified in a society where its incidence was low was through individuals with Down's syndrome being gathered together in an institution.

In the fourth century, the Bishop of Myra, the original Santa Claus is said to have advocated<sup>8</sup> protection of 'idiots', and this is considered by some to have led to their often being given homes in<sup>9</sup> monasteries. Brothwell has reported on the discovery of a skull, probably from a person with Down's syndrome, during excavations on the site of a ninth century monastery at Breedon in Nottinghamshire. Although more than one person with Down's syndrome might have been housed in a monastery at one time, the monks would, no doubt, have seen their role as simply to care for them, as opposed to study them. The medical aspect of the care in the monasteries appears to have been a Galenic form

of therapy aimed at counteracting 'coldness and moistness' and largely took the form of giving 'hot and dry' herbs like fennel and bishopwort, supplemented by holy water and prayer.<sup>10</sup> Unsurprisingly, the accommodation of people with Down's syndrome in monasteries did not lead to their formal identification.

In the seventeenth century a great confinement of the insane, the 'idiot' and the beggar began. Foucault<sup>11</sup> interprets this confinement as one of the answers this century gave to an economic crisis that affected the entire Western world: reduction of wages, unemployment, scarcity of money - the coincidence of these phenomena probably being due to a crisis in the Spanish economy. People with Down's syndrome are likely, at this time, to have found themselves placed in a workhouse (in England), the Hôpital Général (in France), or a Zuchthaus (in Germany). The aim in these establishments, however, was simply to make the inmates work, and the only classification of the people there was into those who were willing to work hard and those who were not.

Towards the end of the eighteenth century, almost simultaneously in England, France, Germany and America, a more positive attitude towards the inmates of contemporary institutions and towards the very poor can be identified. This was associated with the belief that they could greatly benefit from education and particularly from religious/moral instruction. It was

this belief in the value of education, which was a key antecedent in the identification of Down's syndrome because it drew attention to the special educational needs of people with mental handicap in asylums and resulted in the creation of institutions specifically for the purpose of improving the 'idiot'.

The new 'reforming' attitude to the institutional inmate and to the pauper has been attributed by some to a Christian evangelical revival which in both England<sup>12</sup> and America owed much to the work of John Wesley.<sup>13</sup> However, Andrew Scull, who focuses his attention solely on the 'insane' rejects the interpretation of lunacy reform as the triumph of a humanitarian response over ancient superstitions. While he believes that there was a relationship between a transformation in the paradigm of insanity and the introduction of a new system of treatment, moral therapy, he regards this form of treatment as merely an efficient means of management, the appeal of which derived from the high value it placed on work. He considers (following Weber) that the new perception of insanity was itself related to the growing rationalisation of Western society which took place under the dominant, though not the sole, impetus of the development of a capitalist market system.

Scull, however, does not attempt to explain the significance of the fact that kindness replaced a system of very cruel restraint in a number of psychiatric facilities; kindness and cruelty are not concepts which

can be directly associated with either capitalism or communism. His argument is also weakened by the existence of contemporary attempts by Evangelical reformers to redeem other 'races' of people in non-capitalist societies, whom they perceived as immoral and 'savage' like the 'insane'; various missionary societies were established which were based on the belief that all men were capable of regeneration, and were strongly associated with the anti-slavery movement.<sup>14</sup> In Europe and America, Evangelists were also active in 'reforming' work in, for example, the slums,<sup>15</sup> the prisons<sup>16</sup> and the almshouses,<sup>17</sup> and to interpret all these efforts as purely having the aim of creating productive workers is to assume that deeply religious people were not also concerned with 'saving the souls' of those incapable of work.

It has also been suggested that the more positive attitudes to the insane in England can be partly attributed to the recovery of George III from his mania. It is unlikely, however, that this factor contributed in more than a very small way to the introduction of educative regimes in the asylums; to put too much importance on this would be to neglect the reduction in restraint and increase in moral education in the non-psychiatric institutions.<sup>18</sup>

Examples of early institutions for the insane where the reformist zeal of Evangelical Protestantism



was clearly active are, in England, the York Retreat,<sup>19</sup>  
and in America, the Worcester State Hospital.

<sup>20</sup>  
The York Retreat was a Quaker institution which  
had been founded in 1792 by William Tuke whose whole  
family was engaged in 'reforming', educative work; he  
and his wife were co-founders of the Friends' Girls'  
School at York, and his son, Henry was involved in the  
educational work of the British and Foreign Bible  
Society which was closely associated with the various  
<sup>21</sup>  
missionary societies.

Both the York Retreat and the Worcester State  
Hospital were to serve as models for later reformers,  
and, in particular, the methods of the York Retreat  
were to influence John Conolly, whose work: clinical,  
educational and ethnological, was a key antecedent in  
the identification of Down's syndrome.

Newly appointed as the superintendent of Hanwell  
<sup>22</sup>  
Asylum, John Conolly visited the York Retreat (and  
Lincoln Asylum) in May 1839 in preparation for his work  
there. In June, he entered on his duties at Hanwell and  
by October had (unlike William Tuke ) managed  
to abolish all instrumental restraint. Not only  
did Conolly introduce religious services at Hanwell,  
but, by 1842, he had established reading and writing  
classes (taught by a priest) for those residents who  
<sup>23</sup>  
needed them.

It was at this time that Conolly recognized that  
'idiots' required special methods in order to educate

them and arranged to visit the Bicêtre (one of the institutions of the Hôpital Général) where a specially tailored regime had been devised for about forty<sup>24</sup> 'idiots' by the physician, Edouard Séguin.

Séguin had begun work at this institution following the partial success of his teacher, Itard, in educating a 'wild boy' who had been found alone in the<sup>25</sup> Caune Woods. The 'idiots' at the Bicêtre had already been separated from the other inmates as a result of Philippe Pinel's introduction, at the end of the eighteenth century, of a form of moral therapy which, he believed, required that all the patients be divided up<sup>26</sup> according to their type of condition.

Conolly was greatly impressed by the achievements of Séguin's pupils, a "collection of beings offering the smallest degree of intellectual promise", and who in asylums like Hanwell were left in "total indolence and apathy" ; most of Séguin's pupils could not only follow complex instructions, but were able to write and count. Séguin had devised the curriculum himself and in 1846 had developed it sufficiently to publish it in his famous book, The Moral Treatment, Hygiene, and Education of Idiots. Conolly reviewed this book in detail in 1847 in The British and Foreign Medical Review, and a few months later, at a public meeting in London, he met with two other men, Reverend Andrew Reed and Samuel Gaskell (a Commissioner in Lunacy), who, like himself, had also

visited the Bicêtre and decided that Séguin's methods should be tried with British 'idiots'. The appeal was made at this meeting for support for an institution for 'idiots';<sup>27</sup> a committee was subsequently appointed; and the Duke of Cambridge and the Duchess of Gloucester became patrons. In a very short time (April 1848), Park House opened in Highgate.

In America, as in Britain and France, the introduction of moral management into the insane asylums resulted in the recognition of particular educational needs of the 'idiot'. Samuel B. Woodward, Superintendent of the Worcester State Asylum in Massachusetts discussed Séguin's work in his Annual Report of 1844 and suggested that European techniques should be adopted in America. At about the same time, William Ayl, Superintendent of the Ohio Lunatic Asylum, set aside rooms for the 'idiots' in the asylum and at the 1844 founding convention of the Association of Medical Superintendents of American Institutions for the Insane, called for the establishment of institutions especially designed for<sup>28</sup> the training of 'idiots'.

The earliest American special schools were started in Massachusetts through the influence of Woodward. The first of these opened at Barre, Massachusetts by Hervey B. Wilbur. Wilbur had sent to Paris for published materials and received copies of Séguin's writings. Séguin himself credits Wilbur with adapting his methods to classroom instruction. A few months later Samuel

Gridley Howe established an experimental school in South Boston having previously been working with 'idiots' at the Perkins Institution for the Blind. He engaged James B. Richards as a teacher and sent him to Paris to learn Séguin's methods. Pennsylvania, like New York, received its impetus from Massachusetts and again Séguin played a role. In 1852, Richards left Boston and opened a private school in Germantown, a section of Philadelphia. With the support of prominent citizens, among them Dr. Alfred Elwyn and Bishop Alonzo Potter, public interest in the project was generated. An exhibit before the Pennsylvania Legislature in Harrisburg resulted in the appropriation from the state of \$10,000 and the school was moved to Woodbine Avenue. Séguin became associated with its direction but later left, along with Richards, when the school ran into financial difficulties and disputes arose concerning lines of authority. Dr. Joseph Parrish assumed leadership, saved the school from disaster, and effected a move in 1859 to the school's present location in Media, Pennsylvania. In 1857, an institution was established at Columbus Ohio, with Dr. G. A. Doren as superintendent. Again, Séguin was<sup>29</sup> influential in his development.

The emphasis in all the early institutions was very strongly on the 'redemption' of the 'idiot' and work was definitely of secondary importance. Indeed, at Park House, those who would always be totally

incapable of work were welcomed, and it was hoped that they would find in the asylum a "place of rest".<sup>30</sup> In the first annual report, the most important improvement in all the 'idiots' was considered to be in their "moral affections", so that there was a "greater readiness of the mind to recognise and worship an invisible and gracious presence".

Few publications on 'idiocy' came from these first schools although the study of the subject undoubtedly occurred in conjunction with the pupils' education.

One means of study was phrenology, a method which Bynum has shown was deemed by some at the time to be the same as ethnology.<sup>31</sup> Conolly was a founder member of the Ethnological Society (1843) and later followed Sir Benjamin Brodie as president. His involvement with this society was, as we shall see, to lead him to perceive 'idiots' as representatives of the 'primitive', and it was he who introduced phrenological methods at Park House.<sup>32</sup> This form of study was not, however, incompatible with the Christianity of the co-founder, Andrew Reed.<sup>33</sup> Bynum has revealed how phrenological doctrine, like Christianity, stressed a basic uniformity of human nature by postulating that all human beings have an identical set of mental faculties, so that the apparent mental differences between the savage and the European were interpreted as quantitative, not qualitative.<sup>34</sup> It was also compatible with Christianity in the respect that the aim of a phrenological

examination was to determine an individual's particular talents for subsequent development and use ie. directly to help him.

Unquestionably, it was the study of the 'primitive' 'idiot', accompanying the attempts to improve him using educative methods which was a crucial precursor in the identification of Down's syndrome.

Dr. Down was, therefore, not the first person to study 'idiots' and the form of his study of 'idiots' was in many respects similar to that of earlier superintendents: it was intimately and inseparably associated with the treatment process; investigating them without the aim of also helping them was totally inconsistent with his strong religious beliefs. <sup>35</sup> This attitude had clearly helped him to obtain the post of medical superintendent at Earlswood, an institution with a strongly Christian ethos; and it was entered in the 1859 Annual Report:

After much care and inquiry the Board agreed by unanimous vote on the choice of Dr. Down- He comes amongst us therefore with a cordial reception, bears with him the highest testimonials and will, we fully expect, medically and otherwise contribute to the order, comfort and improvement of the charges committed to his care.

There were, however, also a number of new aspects to his investigations at the Royal Earlswood Asylum, the first purpose-built institution specifically for the education and care of 'idiots' in this country (located at Redhill in Surrey), which combined to reveal people

with Down's syndrome as a particular 'type' of human being. These, I shall now describe in some detail.

First, was the fact that Down believed that it was essential to divide the patients at Earlswood up into small, manageable groups according to their apparent capacity for education and treatment. His appointment as Medical Superintendent in 1859 coincided with the completion of the transfer of everyone from the two similar, but smaller, earlier institutions, Park House and Essex Hall,<sup>36</sup> and the consequent concentration of more 'idiots' under one roof than had ever occurred at any time or place in the world before. The following table shows how the asylum had grown.

The Growth of Earlswood Asylum

<u>Institutions(s)</u>	<u>Year</u>	<u>No. of inmates</u>
Park House	1848-9	60
Park House & Essex Hall *	1850	96
Park House & Essex Hall	1851	141
Park House & Essex Hall	1853	198
Park House & Essex Hall	1854	242
Park House & Essex Hall	1855	259
Essex Hall & Earlswood	1856	257
Essex Hall & Earlswood	1857	270
Earlswood only.	1859	276
Earlswood only.	1860	300
Earlswood only.	1861	306
Earlswood only.	1862	320
Earlswood only.	1863	337
Earlswood only.	1864	365
Earlswood only.	1865	404
Earlswood only.	1866	423
Earlswood only.	1867	423
Earlswood only.	1868	455
Earlswood only.	1869	470

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\*Essex Hall had been acquired by the founders of Park House as the latter institution was quickly filled up.

Table 1.



The need for such division and classification was particularly urgently felt because of the very diverse nature of the patients; both adults and children with all kinds and degrees of 'idiocy' had arrived from Park House and Essex Hall (of the two hundred cases, which were subsequently very thoroughly examined by Down, eight were below ten years; one hundred and twenty three were aged between ten and nineteen; sixty one were aged between twenty and twenty nine years; and eight were aged between thirty and thirty nine years).<sup>38</sup> These people included individuals who were so severely handicapped<sup>39</sup> that they were believed to be completely incapable of benefiting from even the simplest forms of education on offer. This very diverse population existed because of the method by which the institutions had been financed: from the fees paid by the parents or guardians of the 'idiots' and by subscribers, who were able to elect people whose relatives could not afford to pay the fees.<sup>40</sup> In practice, this method of funding had resulted in everyone whose parents could afford it obtaining a place, and everyone else i.e. the individuals hoping to be elected standing a very slim chance of being admitted. (Although it was not mentioned in the early annual reports, simple arithmetic reveals that in the first few years after the opening of Park House in 1848, many more payment cases than election cases had been

admitted, and that an individual hoping to be elected had only about a one in twelve chance of being successful).<sup>41</sup>

In fact, it appears that some people had been admitted who could not really be classed as 'idiots'; cases of general paralysis of the insane and dementia<sup>42</sup> were apparently fairly common and at Earlswood a few of the people were described as insane or mentally ill<sup>43</sup> in the case books because of their 'excitability' or violent behaviour. (A person of any degree of mental capacity can suffer from any type of mental illness, so that it cannot be deduced that cases referred to as insane at Earlswood were not also mentally handicapped.)

At Earlswood Asylum, unlike the previous situations at Park House and Essex Hall where there had been considerable overcrowding, there was more than enough room to carry out a physical separation of the patients in the way that Dr. Down desired; this is described by him in his 1859 Annual Report:

One of the many advantages of everyone being under one roof is the possibility of affecting a classification of the pupils based on their degree of intelligence, and capabilities of companionship. In small institutions there must necessarily be a commingling of the inmates and the consequent danger of disadvantage resulting from the influence of the least intelligent upon those who are higher in the scale, with our greatly increased family we have been enabled to obviate this evil and to supply them in their several rooms with the kind of amusement and occupation suited to their various capacities. The further increase of our numbers therefore so far from extending this danger will provide us with means of effecting still greater refinement in the separation of the varying orders of mental condition.

How then did Down determine which 'order of mental condition' an individual belonged to? Inspection of the case books corresponding to the period when he was Medical Superintendent shows that his assessment of the intellectual and personal qualities of the people at the asylum was made by testing the person for specific abilities which were believed necessary for success in the educational programme, for example the capacity to imitate; as well as by phrenological and physiognomical examination, so that the assumption had already been made that physical characteristics could yield information about mental characteristics. People who looked alike were, therefore, believed to think in the same way and have the same educational potential.<sup>44</sup> In addition to simple observation of their appearance and measurements of their heads, Down also conducted an investigation into the structure and functions of the various 'organs seriatim' amongst 'idiots';<sup>45</sup> it is clear that this was another aspect of the physical state of 'idiots' from which he believed that he could "predicate...what will be their probable future mental improvement."<sup>46</sup> During this investigation, which he conducted quite shortly after becoming Superintendent, he examined in great detail the mouths of about two hundred of the patients at Earlswood and observed the similarities in the tongues of the people with Down's syndrome. He wrote:

In sixteen cases the tongue presents a soddened appearance and exhibits deep transverse furrows on its dorsal surface. In all these patients one is able to trace a marked physiological agreement and so much do they resemble one another in these respects that they might readily be taken for members of the same family.<sup>47</sup>

It is evident, therefore, that people with Down's syndrome had stood out as a particular 'type' of 'idiot' as soon as Down began his systematic examinations of the people at Earlswood. The question which therefore arises is, why didn't previous investigators recognize Down's syndrome as an entity?

One part of the answer to this question lies in the fact that in many of the earlier groupings of 'idiots' for educational purposes, although the assessment of their mental characteristics was, no doubt, conducted using similar assumptions, the generally much smaller size of the groups than that found at Earlswood Asylum makes it unlikely that they contained enough people with Down's syndrome for them to have been recognized as a distinct 'type'. It has also been stated by another nineteenth century investigator of 'idiocy', Sir Arthur Mitchell, that, at this time, people with Down's syndrome were rarely placed in lunatic asylums probably because they could quite easily  
<sup>48</sup>  
by cared for at home, and this is of relevance to this discussion because the first classes for 'idiots' were established within the Bicêtre and Salpêtrière at the beginning of the nineteenth century. It is probable, too, that Down would have had a particularly good

opportunity to observe and study people with Down's syndrome at the Royal Earlswood Asylum just a year or two before he published his ethnic classification in 1866, because the age for first application to this asylum was limited to twelve years in 1864,<sup>49</sup> and this would have probably resulted in children with Down's syndrome being admitted for educational reasons and therefore making up a larger proportion of the regular new intake of 'idiots' than they had in earlier years when there was no age limit on admission.

In larger, earlier institutions for 'idiots', for example Séguin's school in France and Guggenbuhl's institution for 'cretins' in the Abendberg, there may have been enough people with Down's syndrome for the similarities between them to have been observable, but these were clearly not thought to be of sufficient significance to warrant establishing a new variety of 'idiocy' definable by these characteristics.

<sup>50</sup>  
As Smith and Berg have noted Séguin appears to have included people with Down's syndrome within the category of 'cretinism', believing it to be a furfuraceous variety on account of the type of skin: "milk-white rosy and peeling...; with its shortcomings of the integuments, which give an unfinished aspect to the truncated fingers and nose; with its cracked lips and tongue; with its red, ectopic conjunctiva, coming out to supply the curtailed skin at the margin of the lids."<sup>51</sup>

As other types of 'cretins' also had abnormal skin, Séguin believed he could not justify separating them from the furfuraceous variety. He, in fact, wrote of furfuraceous cretinism:

Our incomplete studies do not permit its actual classification; but it is better to leave things by themselves, than to force them into classes which have their foundation only on paper.<sup>52</sup>

Guillaume Ferrus, the physician, who had conducted the first class for the education of 'idiots' in 1828, also recognized divisions within the category of cretinism: 'cretins', 'sub-cretins' and 'cretinous persons',<sup>53</sup> so that in view of the similarities between congenital hypothyroidism and Down's syndrome, an individual with Down's syndrome could easily have been assigned to one of these sub-divisions.

Why then did Down believe that he could legitimately describe people with Down's syndrome by a racial concept, as opposed to using a classificatory system based on the traditional divisions within 'idiocy', such as 'cretinism' and 'hydrocephalus'?

And why did Down call people with Down's syndrome 'Mongols' in his 1866 paper, but not in his 1862<sup>54</sup> paper?

Part of the answer to the first question obviously lies in the late eighteenth century and nineteenth century practice (noted earlier in this chapter) of comparing apparently 'primitive' Europeans with members of non-European races. The specific idea that the

'idiot' was of the same type as the primitive races had been suggested to Down by Conolly. As a result of Conolly's involvement in the Ethnological Society, he was present at the exhibition of two children of American-Indian origin in London.<sup>55</sup> Bynum<sup>56</sup> has documented how these children were regarded as degenerates by the comparative anatomist, Owen, who carefully specified that the differences between the human races were not so great as to justify classifying man into different species. Conolly had written of these children in 1855:

My own attention having, for a few years previously, been particularly directed to the characters of idiocy, in the Asylum for those afflicted beings at Highgate, I was at once struck with the remarkable resemblance of these little Aztecs to some of the lowest types there observable.<sup>57</sup>

Down had some contact with Conolly while he was superintendent of Earlswood and wrote of Conolly:

His visits were the most refreshing incidents of my recollection in connection with the Asylum. Entering on my work as an untried man... I was mainly decided on holding [it]... by the influence of Dr. Conolly. The influence was magical...I have often had to seek his counsel...Only a few weeks before his decease I found him, as ever, ready to aid by advice... and deeds.<sup>58</sup>

The possibility of the interpretation of certain of the characteristics of people with Down's syndrome as also common to those of members of the Mongolian race was, to the nineteenth century investigator, therefore a fairly logical conclusion. The face does suggest an Oriental configuration being notable for its flatness with a short and squat nose; Down, himself, described it

as "flat and broad and destitute of prominence. The cheeks are roundish and extended laterally."<sup>59</sup> In addition, an epicanthic fold is present in the Oriental eye, as well as in the eye of the people with Down's syndrome. Down noted that in 'Mongolian idiots' "the eyes are obliquely placed and the internal canthi more than normally distant from one another, the palpebral fissure is very narrow:"<sup>60</sup> actually it is the epicanthic folds of skin, which make the intra-ocular distance seem wide, in fact, it is actually diminished.<sup>61</sup>

Down did not regard any of the similarities he had described to be accidental; in his own words, he said of the congenital 'idiots':

There can be no doubt that these ethnic features are the result of degeneration.<sup>62</sup>

Degeneration was the process by which such eighteenth century naturalists as Blumenbach, and some nineteenth century ethnologists eg. Owen and Conolly believed that the formation of the races other than the Caucasian had occurred; environmental conditions were considered to have changed the skin colour and features etc. of originally white people to those now shown by 'primitive' races. This was compatible with monophyletism i.e. the belief that all of mankind were part of one family.

The notion that Europeans were degenerating, so that the apparently common features between Europeans and the savage/barbarian were not simply behavioural,



but were rooted in physiology had been expounded since the end of the eighteenth century in France.

The work of the French physician, B. A. Morel, A Treatise on the Degenerations, Physical, Intellectual, and Moral had been translated into English in 1857, and an examination of Down's work suggests that he was familiar with it.<sup>63</sup> Morel argued that all the insane were in a degenerate state having undergone pathological changes which could be hereditarily transmitted. In formulating his theory he had been crucially influenced by Pinel's belief that medicine had extensive links with the history of mankind. Pinel had arrived at this conclusion through his membership of the first anthropological society in the world, Société des Observateurs de l'homme, which had been founded in the eighth year of the first French Republic (November or December 1799).<sup>64</sup> This society, whose members included explorers, physicians and teachers, perceived the child (the president of the society was a school-teacher), the savage and the insane as irrational primitive beings. Thus, from this very early society the notion of degeneracy in the psychiatric sense was established and, in addition, a linkage was forged between moral education and the degenerate (the ideologue, Joseph Marie Degérando was a member of this society and his teaching methods and directions were adopted by Jean Itard in his education of Victor).

In the first half of the nineteenth century, the concept of degeneracy had been combined with work in embryology to explain the apparent inferiority of the non-white races, and also to account for the occasional occurrence of 'inferior' Caucasian people. Such work was carried out by another member of the Société, the observateur, Geoffroy Saint-Hilaire. Saint-Hilaire believed in the 'unity of type' ie. that there was a single archetypal animal plan and a consequent common pattern of development in embryos. Each animal, in the course of its own development would repeat the development of the whole animal kingdom until it reached the stage characteristic of that particular kind of animal. However, if a pre-natal environmental influence should cause an arrest of development, a more primitive form of animal could be born, or if only part of the animal were adversely affected, a less developed, particular organ system could be produced. In order to prove that defective development was not pre-determined, he conducted a series of experiments on hens' eggs to show that external factors could produce anomalies.<sup>65</sup>

Séguin considered the 'idiots' whom he taught, to be 'enfants arrières', and believed, like Pinel and Itard, that they could throw light on the natural history of man. He wrote:

If these [special schools] were founded for idiots, idiots seem permitted to exist and are expensively gathered and treated not only for their own welfare, but for some social and scientific objects which disclose themselves, when we advance in the road

of progress, as so many new duties for us to perform. Among these raisons d'être of idiocy, the most urgent, the most neglected arises from the light to be thrown on all the branches of anthropology by sound and complete observations from the cradle to the slab.<sup>66</sup>

However, he did not adopt an ethnic classification to describe them. As we have seen he appears to have regarded people with Down's syndrome as 'cretins', but the use of the term 'unfinished' in the earlier extract from his work was compatible with this embryological/degeneration theoretical framework; it was to continue to be used into the twentieth century in connection with Down's syndrome.

At the heart of Down's ethnic classification was the work of Saint-Hilaire's "chief follower" the early nineteenth century embryologist and teratologist, Etienne-Renaud August Serres. His embryological work was based on the same assumptions as those of Saint-Hilaire<sup>67</sup> and indeed Gould describes how as late as 1860, Serres wrote a thousand-page paean to his mentor upholding Saint-Hilaire's doctrine in scarcely modified form. However, as Bynum has shown, Serres did make important additions - he further sub-divided the last month of human gestation and proposed that the European brain actually passes through stages corresponding to the<sup>68</sup> final form of the brains of lower races.

Down may have become acquainted with Serres' work through the descriptions of it which occurred in a number of English books: Lord's Popular Physiology (1834), John Anderson's Sketch of the Comparative

Anatomy of the Nervous System (1838) and John Fletcher's  
<sup>69</sup>  
Rudiments of Physiology' (1837). Serres' embryology  
was also adopted by the Anglican liberal, Cooke Taylor  
<sup>70</sup>  
(from Lord's work) and by the evolutionist, Robert  
Chambers, who both considered the consequences of an  
arrest of development occurring late in pregnancy.

Cooke Taylor wrote in 1840:

Arrest of development might take place...that is  
the brain might cease to grow...from accidental pressure  
from an impediment to the vessels carrying nutrition,  
or from many other causes; if this arrest took place  
during any of the later phases [of foetal development]  
we have described man would be born with either the  
Negro or Mongolian cerebral formation. There is  
a tendency to produce such peculiarities in marriages of  
consanguinity, and there is no doubt that they would be  
perpetuated by family intermarriages.<sup>71</sup>

And Chambers wrote similarly in 1844:

All the varieties of mankind ... are simply the  
result of so many advances and retrogressions in the  
developing power of the human mothers, these advances  
and retrogressions being ... the immediate effect of  
external conditions in nutrition, hardship & c., and  
also perhaps to some extent, of the suitability of  
marriages, for it is found that parents too nearly  
related tend to produce offspring of the Mongolian type  
- that is persons who in maturity still are a kind of  
children ... The Mongolian, Malay, American, and Negro,  
comprehending perhaps five-sixths of mankind are  
degenerate.<sup>72</sup>

Neither Taylor nor Chambers are likely to have had  
people with Down's syndrome in mind in their references  
to the possibility of Mongolian cerebral formation  
occurring in Caucasian populations; neither had worked  
with congenital 'idiots' and neither gave a description  
of the appearance of European people with Mongolian  
brains (Serres' theory referred to cerebral development

only).

Therefore, the most important part of the answer to the question of why Down should have believed that an ethnic classification of 'idiots' was an appropriate one, was that the assumptions underlying such a classification were simply derived from earlier theories of race formation and congenital abnormality ie. the belief that ethnic characteristics were produced by moral/ environmental factors (through the process of degeneracy); and the theory that congenital human abnormality and inferiority were caused by environmental factors acting pre-natally to produce an arrest of development, so that racial type could be seen as a measure of development.

In formulating his classification, Down was also, therefore, combining two concepts: 'unity of type' and 'unity of mankind'. The former concept according to Serres' embryology required that the Negro and Mongolian races were less developed; the latter, based on Blumenbach's theory of degeneracy required that there was an originally white 'type' from which the other races had been derived. Down reconciled these concepts through the assumption that all the races other than the Caucasian were in some way abnormal, unnatural, imperfect states, so that people with Down's syndrome were virtually the same as people of the Mongolian race; both were 'primitive' and pathological 'types'. Chambers, too, had already described the 'primitive'

racess in this way; he had written:

The Negro exhibits permanently the imperfect brain, projecting lower jaw and slender bent limbs of a Caucasian child some considerable time before the period of birth. The aboriginal American represents the same child nearer birth. The Mongolian is an arrested infant newly born.<sup>73</sup>

Down's familiarity with these theories of race and 'idiocy' stemmed, no doubt, from both his educational<sup>74</sup> background and from his visits to foreign asylums. He was not only a physician, but also had trained in comparative anatomy and lectured in that subject at the London Hospital. One focus of comparative anatomy at the time was racial differences. In addition, he had read<sup>75</sup> and analysed Howe's Report, which considered 'idiots' to be degenerates; and had visited Guggenbühl's establishment in the Swiss alps where the cretins there were also viewed as degenerates. In 1860, he had also visited all the French 'idiot' asylums. However, this does not answer the question of why Down should have published his ethnic classification when he did.

The explanation for this appears to lie in the fact that the American Civil War (1861-1865) drew attention to the practice of slavery in the Southern States and to the scientific arguments, which were being advanced to support its continuation. Down was well aware of these while superintendent at Earlswood, and his wish to counter the pro-slavery arguments was partly responsible for his description of people with Down's syndrome as Mongols and his search for Ethiopian

'idiots' (theoretically, of course, these already existed - in Serres' embryology).

It was, in fact, the scientific standpoint of the American anthropologists, J.C. Nott (a physician from Mobile in the heart of the South) and G.R. Gliddon (an eminent Egyptologist) which Down was opposed to (he actually criticizes these two particular anthropologists<sup>76</sup> in one of his publications). Nott's and Gliddon's arguments, which had been embodied in their Types of Mankind(1854) and Indigenous Races of the Earth(1857), had been used by the Secretary of State, J.C Calhoun, in support of Negro slavery; an application of which they<sup>77</sup> were proud.

In their works, Nott and Gliddon maintained the polygenetic theory of race formation and emphasized great fundamental differences between the inferior black and superior white races. The same year as Down's ethnic classification was published (two years after the end of the Civil War in America when the Negroes were freed ), Nott discussed the very theory which it was based on. He wrote:

The question then, as to the existence and permanence of races, types, species, permanent varieties, call them what you please, is no longer an open one. Forms that have been permanent for several thousand years must remain so at least during the life of a nation. It is true there is a school of naturalists among whom are numbered the great names of Lamarck, Geoffroy St. Hilaire, Darwin and others, which advocates the development theory, and contends not only that one type may be transformed into another, but that man

himself is nothing more than a developed worm; but this school requires millions of years to carry out the changes by infinitesimal steps of progression. With such theories or refinements of science, our present investigation (on the Instincts of Races) has no connexion, as the Freedman's Bureau will not have vitality enough to see the Negro experiment through many hundred generations and to direct the imperfect plans of Providence.<sup>78</sup>

Down's discovery of the 'Mongolian type' of 'idiot' could clearly demonstrate that Nott was quite wrong; it obviously did not take "many hundreds of generations" for one type to be transformed into another. Down stated his argument as follows:

The tendency in the present day is to reject the opinion that the various races are merely varieties of the human family having a common origin and to insist that climatic or other influences are insufficient to account for the different types of man. Here, however, we have examples of retrogression or at all events of departure from one type and the assumption of the characteristics of another. If these great racial divisions are fixed and definite how comes it that disease is able to break down the barrier, and to simulate so closely the features of the members of another division. I cannot but think that the observations, which I have recorded are indications that the differences in the races are not specific but variable. These examples of the result of degeneracy among mankind appear to me to furnish some arguments in favour of the unity of the human species.<sup>79</sup>

The possibility also obviously existed that a Negro slave's offspring could be born transformed into a 'civilized', white human being if his parents were only provided with the right healthy environmental conditions, which would allow pre-natal development to reach its natural stage of perfection.

Although other investigators before Down had attempted to show that lifestyle or environment could affect the final 'type' born, none actually had



'specimens' like Down's 'Mongols', which they could present as proof. For example, Geoffroy Saint-Hilaire's, experiments on hens' eggs had managed to produce some anomalies<sup>80</sup>, but these results could not easily be generalized to the question of race. Robert Chambers had cited a number of examples of changes in racial 'type' occurring, for example he wrote:

True whites (apart from albinos) are not infrequently born among Negroes and the tendency to this singularity is transmitted in families...The style of living is ascertained to have a powerful effect in modifying the human figure in the course of generations and this even in its 'osseous structure'.<sup>81</sup>

Down therefore believed that his unique form of evidence might be able to influence how the 'Negro experiment' was conducted.

The description of people with Down's syndrome as 'Mongols' in 1866 was thus a result of a number of factors: the concentration of a large number of cases of Down's syndrome in the world's largest institution specifically for 'idiots'; a superintendent, who was familiar with the concept of the 'idiot' as a primitive 'type', as well as with racial theories, and therefore whose attention was drawn to the apparently ethnic characteristics of the person with Down's syndrome; and 'the Negro question' in America, which had been highlighted in England by the American Civil War, so that Down was motivated to publish his observations in order to contribute to the debate.

However, another contemporary investigator of

'idiocy', Sir Arthur Mitchell, a Scottish physician, appears to have identified people with Down's syndrome as being a particular 'type' of human being as a result of another combination of factors.

Mitchell, like Down came into direct contact with a large number of 'idiots', not, however, as a medical superintendent, but through his appointment, directly after the formation of the Scottish Board, as a deputy commissioner in lunacy with special responsibility for investigating the insane (including 'idiots') under private care. The Scottish Board (consisting of an unpaid chairman, two doctors and two lawyers) had been appointed following the passage of the 1857 Lunacy (Scotland) Act in order to continue the work of an 1855 Royal Commission which itself was a result of the activities of Dorothea Dix, an American prison and asylum reformer. Dix, on a visit to Scotland in 1854, had discovered that the Scottish insane were being subjected to obvious abuse, and had managed to convince the authorities in London of the necessity of investigating the horrific conditions in both asylum and private care.

82

Mitchell divided the 'insane' he subsequently visited into two main categories: those who had 'acquired insanity' and those who were 'idiots'. Such conditions as 'mania' and 'melancholia' fell into the former category while those people who had a congenital

disorder or "one having its origin in the early period<sup>83</sup> of extra-uterine life" he classified as 'idiots'.

As already discussed, Mitchell subsequently stated that people with Down's syndrome were more frequently cared for at home than in lunatic asylums, so that they consequently made up a considerable proportion of those he categorised as 'idiots'. Although two special institutions for 'idiots' existed in Scotland when Mitchell began his investigations, one at Baldovan, Dundee and the other in Edinburgh, these were both small and therefore would have contained only a tiny percentage of the cases of Down's syndrome in<sup>84</sup> Scotland.

Mitchell's study of 'idiocy' was primarily directed at discovering its cause or causes in Scotland, rather than distinguishing grades of severity within it and attempting to elicit particular mental and physical characteristics associated with them for educational purposes as Down had done in his ethnic classification. His particular aetiological investigations were a consequence of a meeting some years earlier at the British Association for the Advancement of Science in Edinburgh "when it was agreed to memorialise her Majesty's government in favour of a national survey, to determine the extent to which congenital idiocy exists throughout the Kingdom at large, and the causes of its prevalence in particular districts."<sup>85</sup>

This meeting had itself followed a resolution by

Judge Horatio Byington in 1846 in Massachusetts calling for an appointment of a commission to investigate the condition of 'idiots' in that state, and the subsequent report on the causes of 'idiocy' by Samuel Gridley Howe. The subjects of Howe's survey were four hundred and twenty cases of congenital 'idiocy',<sup>86</sup> and almost certainly must have included people with Down's syndrome, so that it is possible that this earlier study of the causes of 'idiocy' could have drawn attention to Down's syndrome through the observation that a number of these 'idiots' were born to middle-aged parents or were the last-born of a large family. However, this was not the case because of the way in which the inquiry was directed; Howe only asked certain questions and these were framed before his contact with the 'idiots', so that they were loaded with his preconceptions. In keeping with the prevailing view, in Massachusetts, of the causes of the occurrence of the deformed, blind, deaf, insane, paupers, criminals and the Negro, Howe attributed the aetiology of 'idiocy' to a violation of certain natural laws. These laws were considered to have been laid down by God, and the occurrence of imperfections and suffering through their infringement was viewed as the "chastisements sent by a loving Father to bring back his children to obedience to his beneficent laws" in order that all mankind could<sup>87</sup> eventually attain "the perfection of civilization".

The 'idiot', like other imperfect groups, had therefore undergone physical and mental degradation as a result of his parents' or grandparents' sins,<sup>88</sup> and therefore could be seen as undeserving of help. Howe, however, did not take this view; he not only became superintendent of the Massachusetts School for Idiotic and Feeble-minded Youth, but was also a fervent abolitionist. He reasoned that 'unoffending children' should not suffer for the offences of their parents, but should receive special help.

Howe firmly discounted the possibility that 'idiocy' could ever arise accidentally; a 'loving father' would not permit 'innocent' parents to be punished by the birth of a degenerate child. He therefore only examined the relationship between the following possible features of the parents and the occurrence of 'idiot' offspring: whether "one or the other, or both of them, were very unhealthy or scrofulous; or they were hereditarily predisposed to affections of the brains, causing occasional insanity; or they had intermarried with blood relatives; or they had been intemperate; or had been guilty of sensual excesses which impaired their constitutions."<sup>89</sup> Age of the parents at the birth of the child, or the child's position in the family had no such association with sin and therefore were completely ignored by Howe (so too, were injury during parturition or any later accidental brain injury for the same reason). Clearly though, he

would not have had any problem finding a 'sin' to account for the occurrence of children with Down's syndrome; it would be difficult to find anyone who had not been guilty of one of his vices.

Mitchell was familiar with Howe's survey and its results, but the questions he asked were different; rather than attempting to prove an association with sin, Mitchell, possibly influenced by Chambers, focused much of his attention on intra-uterine and perinatal factors which could affect development, for example the presence of twins in the uterus,<sup>90</sup> peculiarities in the obstetrical history of women who had given birth to 'idiots',<sup>91</sup> the age of the mother,<sup>92</sup> birth order,<sup>93</sup> and<sup>94</sup> difficulties in parturition.

The only similarity with Howe's line of inquiry was his investigation of the relationship between intermarriage and 'idiocy', but in contrast to Howe's attitude to the subject, Mitchell stated that he "felt a perfect indifference as to whether [he] should be led to the conclusion that a blood-relationship did much, or little or no injury to the offspring, and [he had] endeavoured to conduct the inquiry without prejudice."<sup>95</sup>

<sup>96</sup>  
The inquiry which is most likely to have directed his attention to Down's syndrome was a statistical one, which contained two pertinent analyses: "the comparative frequency of births of idiots in first and subsequent pregnancies" and "the age of the mother

of the idiot at the time of birth of the idiot". In the same year as Mitchell published the results of these analyses (1866), he almost certainly had identified Down's syndrome as the following extract shows:

There are, however, certain forms of idiocy which patients properly classed as labouring under traumatic idiocy never would exhibit. One of these, for instance which is detached from the other forms of idiocy by lines quite as clear as those which separate mania from melancholia, has invariably an intra-uterine origin, and there is good reason to believe that the abnormalities which it presents date from the early months of pregnancy. A case of this kind could not be classed as one of traumatic idiocy, in the meaning at least which we have given to that term.<sup>97</sup>

The main reason that it can be concluded that he was referring to Down's syndrome (or Kalmuc idiocy as he termed it in 1876) when he stated that there was one form of 'idiocy' which was 'detached from the other forms' is that he did not subsequently describe or isolate any other 'type' of 'idiocy'. In addition to this, Mitchell later stated that he believed 'Kalmuc idiocy' to be of intra-uterine origin in his notes.

Mitchell appears to have been motivated to conduct his investigations into birth order, maternal age and idiocy by his belief that there was a relationship<sup>98</sup> between first born children and 'idiocy', although it is possible that he was also aware of an association between late birth order, advanced maternal age and 'Kalmuc idiocy' before his statistical analyses demonstrated this; his many visits to 'idiots' in private care may have made him aware that there was a relationship between Down's syndrome and being last born

or having old parents.

In addition to his possible own observations of this, it is also the case that other investigators had noted relationships between 'idiocy', birth order and parental age. Thomas Willis, writing in the seventeenth century on the subject had stated that "innate or original stupidity" could be caused by parents who were too young or too old; in such cases, he considered that the offspring "do often want a great and liberal ingenuity or wit."<sup>99</sup> Francis Battersby, in the middle of the nineteenth century had reported on the fact that the age of the father had been assigned as a cause of congenital chronic hydrocephalus.<sup>100</sup> It should be noted that there was not only considerable diagnostic confusion between 'cretinism' and 'congenital idiocy', but also between hydrocephalus and these two conditions. Hydrocephalus, for example, was considered to be a condition which could also exist with a head natural in size or of diminished volume,<sup>101</sup> and was sometimes considered to be found accidentally in 'idiots' and 'cretins'.<sup>102</sup>

In conclusion, it can be said that both Down's and Mitchell's identification of the syndrome came about as a result of the first major investigations (in the eighteen sixties) into the causes and characteristics of 'idiocy' in this country; the detailed study of a considerable number of cases of Down's syndrome appears



to have been necessary to distinguish this condition from 'cretinism', 'hydrocephalus' and 'congenital idiocy'.

## NOTES: CHAPTER TWO

1. J.L.H. Down "Observations on an Ethnic Classification of Idiots", Lond. Hosp. Clin. Lect. Rep. 3 (1866): 259-262. This may be conveniently consulted in The Origins of Modern Psychiatry ed. C. Thompson (Chichester: John Wiley & Sons, 1987) pp.15-18.
2. J.L.H. Down "On the Condition of the Mouth in Idiocy" Lancet i (1862): in Down J.L.H. On Some of the Mental Affections of Childhood and Youth. (London: J. & A. Churchill, 1887), pp. 154-166.
3. Down's life is described by C. A. Birch in "Down's Syndrome, John Langdon Haydon Langdon-Down 1828-1896", Practitioner 210 (1973): 171-172. See also S. M. Mould and L. Morton "John Langdon Down" Newsl. Libr. Ass. Med. Health Libr. Group 17 (1982): 35-37.
4. A.E. Mirkinson "Is Down's syndrome a modern disease?" Lancet 2 (July 13th 1968): 103. B.W. Richards "Is Down's syndrome a modern disease?" Lancet 2 (August 10th 1968): 353-354. H. Zellweger "Is Down's syndrome a modern disease?" Lancet 2 (August 24th 1968): 458. T. Cone "Is Down's syndrome a modern disease?" Lancet 2 (October 12th 1968): 829.
5. For a fuller discussion of these issues see, for example, E.A. Wrigley "The Implications of English Mortality" in Problems and Methods in the History of Medicine, eds. Roy Porter and Andrew Wear (London: Croom Helm Ltd., 1987).
6. Ibid.
7. G. Milton and R. Gonzalo "Jaguar Cult - Down's syndrome", Expedition 16 (1974): 33.
8. L. Penrose The Biology of Mental Defect. (London: Sidgwick and Jackson, 1972), p.3.
9. D. R. Brothwell R. "A Possible Case of Mongolism in a Saxon Population", Annals of Human Genetics 24 (1960): 141-147.
10. For a description of the early treatment of people with mental handicap, which has received less attention than that of the nineteenth and twentieth centuries see P. Achenbach "Mental Subnormality 1324-1961" PhD. thesis. University of Dublin, 1967.
11. For a full discussion of 'The Great Confinement' see,

M. Foucault Madness and Civilization (London: Tavistock, 1979) p.38. Porter, however, argues that Foucault's concept of a great confinement did not fit the facts for England, as it overestimates the scale of sequestration and neglects the idleness of asylum life at this time. R. Porter Mind Forged Manacles (London: The Athlone Press, 1987) pp.5-9.

12. For a description of John Wesley's life and works see Rupert E. Davis Methodism (Harmondsworth: Penguin books, 1963), pp. 43-64.

13. A. Scull "Madness and Segregative Control: The Rise of the Insane Asylum" in Mental Health Care and Social Policy, ed. P. Brown (London: Routledge and Kegan Paul, 1985).

14. For a fuller description of the formation of these missionary societies see J. F. A. Ajayi Christian Missions in Nigeria (1841-1891). The Making of a New Elite Sixth impression (Harlow: Longman, 1981), pp.7-8.

15. 'Primitive' European types whose behaviour fell short of the standard considered characteristic of their own society were compared to the subjects of the missionary, the overseas 'savages' and a similar optimistic attitude to the possibility of their improvement was adopted. Weber has shown how it was argued in early nineteenth century England by certain Anglican liberals, for example Whately and Cooke Taylor, that the urban slum dweller, who, they considered, resembled the savage in his uncouth manner and appearance, his heathenism, ignorance, immorality and idleness was redeemable. His reformation was to be effected by improving his physical environment (drainage, cheaper food, temperance etc.) and his moral environment (education, religious instruction, Poor Law reform etc.).

G. Weber "Industrialisation and Degeneration: the contribution of ethnological theory to early nineteenth century social medicine" The Society for the Social History of Medicine 18 (1976): 7.

16. At the end of the eighteenth century the local gaols were disease-ridden holding places which allowed for what the reformers saw as many types of contaminating influences. In England, Elizabeth Fry, a Quaker preacher became actively involved in the redemption of the women at Newgate prison, an institution which had often been singled out for special condemnation. Initially she concentrated her efforts on the children of the female inmates, who were incarcerated in the prison, but she subsequently attempted to transform their mothers by inducing them to listen to the holy scriptures; to participate in a nominal education and to achieve habits of constant respect and deference to authority.

For a very much more detailed account of Elizabeth Fry's prison reform see Russell P. Dobash et al. The Imprisonment of Women (Oxford: Blackwell, 1986), pp.41-56.

17. For example, at this time in America, concern was being shown for the young free black orphans who were being held in the deplorable almshouses. Unlike white children, they were excluded from orphanages and therefore received no schooling, and more importantly in the eyes of the reformers, there was no attempt to instil in them principles of morality or religion. In this case, however, rather than attempting to improve the almshouses, in 1822, the Quakers established the Philadelphia Association for the Care of Colored Children and set up the first colored orphanage. In 1838, however, white mobs burned this orphanage down.

For a more detailed account of the Quaker involvement in the formation of orphanages for black children see Andrew Billingley and Jeanne Giovannoni Children of the Storm (New York: Harcourt Brace Jovanovich, 1972), pp. 27-31.

18. For example Katherine Jones writes "the effect on lunacy reform of this...attack suffered by the King are intangible, but nevertheless real. The sympathies of the nation were with the sufferer, and the note of moral condemnation which had previously characterized all approaches to the subject was entirely lacking...Madness had become a respectable malady- one which might happen to anybody; and, which is even more important, one which was susceptible to treatment and capable of cure."

K. Jones A History of the Mental Health Services (London: Routledge and Kegan Paul, 1972), pp. 37-38.

See also I. Macalpine and R. Hunter George III and the Mad-Business (London: Allen Lane the Penguin Press, 1969).

19. J. Morrissey, H. Goldman and L. Klermann "Cycles of Institutional Reform" in Mental Health Care and Social Policy ed. P. Brown (London: Routledge and Kegan Paul, 1985). For a discussion of insanity and asylums in Massachusetts see G.N. Grob "Introduction" in E. Jarvis Insanity and Idiocy in Massachusetts (Cambridge: Harvard University Press, 1971) pp.1-33.

20. The regime at the York Retreat is described by for example Anne Digby in "Moral Treatment at the Retreat, 1796-1846" in The Anatomy of Madness. Essays in the History of Psychiatry Vol.II Edited by W. F. Bynum et al. (London: Tavistock Publications, 1985) pp.55-72.

The Regime at Hanwell is described by John Conolly, himself, in Treatment of the Insane without Mechanical Restraints (Folkestone: Dawsons of Pall Mall, 1973) pp. 175-289. It is discussed historically by Richard Hunter and Ida Macalpine in the "Introduction" to the above pp. xvi-xxvii.

21. Noted by Katherine Jones op.cit. note 18 p.48.

22. Conolly's life has been written about by a number of historians. For a very brief summary see R. Hunter "One Hundred Years after John Conolly" Proceedings Royal Society of Medicine 60 (1967): 85. More detailed accounts are given by Elaine Showalter in The Female Malady: Women, Madness and English Culture, 1830-1980 (London: Virago Press, 1987) pp.23-50., and by A. Scull in "A Victorian Alienist: John Conolly, F.R.C.P., D.C.L.(1794-1866)" in The Anatomy of Madness: Essays in the History of Psychiatry Vol.I Edited by W.F. Bynum, Roy Porter and Michael Shepherd. (London: Tavistock Publications, 1985), pp.103-150.

23. John Conolly, Treatment of the Insane without Mechanical Restraints op. cit. note 20 pp.274-277.

24. Conolly's visit to France is described by Patrick Achenbach op. cit. note 10 pp.115-116.

25. For a brief description of Itard's work see M. Rosen, Gerald R. Clark and Marvin S. Kivitz "Introduction" in The History of Mental Retardation. Collected Papers edited by Rosen et al. (Baltimore: University Park Press, 1976) p.xviii. For a much more detailed account see Harlan L. Lane The Wild Boy of Aveyron (Cambridge, Mass.: Harvard University Press, 1976).

26. Pinel, himself, had believed that all that could be done for the majority of the 'idiot' class was to provide humane attention to their physical wants and comforts, and to protect them from cruelty. Some, however, he involved in manual occupation at a plantation attached to the asylum. Philippe Pinel A Treatise on Insanity Translated by D. Davis (New York: Hafner Publishing Company, 1962), p.202.

27. Discussed by Patrick Achenbach op. cit. note 10.

28. Described in more detail by Peter Tyor and Leland Bell in Caring for the Retarded in America. A History (Westport: Greenwood Press, 1984) p.11.

29. Peter Tyor and Leland Bell *ibid.* p.18.

30. First Annual Report Park House (1848) Archives Earlswood Asylum.

31. W. F. Bynum "Time's Noblest Offspring; The Problem of Man in the British Natural Historical Sciences (1800-1863)" (Ph. D. thesis: University of Cambridge, 1974) p.168.

32. Conolly had become familiar with phrenological methods through witnessing a leading phrenologist's, George Combe's, delineations on some prisoners there. In 1835 Conolly had been appointed as president of the Warwick Phrenological Society, and subsequently adopted phrenological methods in his study of the 'insane' at Hanwell Asylum.

Discussed further by R. J. Cooter in "Phrenology and British Alienists (1825-1845)" Medical History 20 (1976): 18.

33. W. F. Bynum op. cit. note 31 p.174.

34. Bynum also shows that this was the reason that certain other clergyman had been able to accept phrenology: David Welsh, one of the founders of Edinburgh's Phrenological Society, was Professor of Church History at the University of Edinburgh; T. D. Hincks, a prominent Belfast clergyman, had taken an active part in the phrenologically-inclined Belfast Natural History Society; and Richard Whately, Archbishop of Dublin, had supported George Combe's candidacy for the Chair of Logic at the University of Edinburgh. Ibid. p.196.

35. These are apparent from a number of his publications, in particular his "Introductory Lecture" delivered to the medical students at the London Hospital Medical College in 1864. J. L. Down An Introductory Lecture delivered at the London Hospital Medical College (London: H. K. Lewis, 1864) 21-23.

36. J.L.H. Down Annual Report Royal Earlswood Asylum (1859) Archives Royal Earlswood Asylum.

37. Compiled from the the Annual Reports from Park House, Essex Hall and Earlswood Asylum, in the Archives of Earlswood Asylum.

38. J.L.H. Down op. cit. note 2 pp. 158-159.

39. Annual reports: Park House (1849), Earlswood Asylum (1859): in the archives of the Royal Earlswood Asylum.

40. Payment cases fell into two categories: full and part. Full payment was fifty guineas per annum and anyone prepared to pay this amount "was received without inquiry as to their circumstances". Part payment was twenty five guineas per annum and people hoping to pay this lower fee had to show by "a candid exposition of their circumstances that they were unable to pay the larger sum". In the first annual report it was stated, however, that "they were certain that every subscriber will demand that we should deal generously with a class, which while they are oppressed by a burden almost

intolerable are concerned to preserve the standing and bearing of Englishmen". The elections "were accessible to those, who only by respectable habits are above the pauper and by narrow means deprived of the power of payment."

41. In 1849, eleven election cases were admitted and twenty five payment cases. Competition for an election place was fierce: in 1850, there were hundred and seventy applicants for fifteen places and between 1850 and 1858 only fifteen election cases were admitted each year. In 1858 (when the total number of patients had grown to three hundred and fifty six), it was decided "that the number of payment cases should at no time exceed that of the election cases" and "that the payment cases as a whole should always cover their own cost: and the surplus on such cases regulate from time to time the number of vacancies on reduced payment."

42. M. Duncan "Notes on Idiocy", The Journal of Mental Science 7 (1861): 234.

43. Case books (female) for example cases 19 and 53. Case 53 is described as "screaming out and pouncing on children next to her. She makes odd noises more like wild animals, in fact one would think she had come from Zoological Gardens."

44. J.L.H. Down op. cit. note 2 p.156.

45. Ibid. p. 157.

46. Ibid. p. 156.

47. Ibid. pp. 162-163.

48. J. Fraser and A. Mitchell "Kalmuck Idiocy: report of a case with autopsy with notes on 62 cases by A. Mitchell" J. Ment. Sci. 22 (1876): 161 & 169-80.

49. J.L.H. Down "Annual Report Earlswood Asylum, 1864".

50. G. F. Smith and J. M. Berg Down's Anomaly, 2nd ed. (London: Churchill Livingstone, 1976), chapter one.

51. E. Séguin Le traitement moral, l'hygiène et l'éducation des idiots (Paris: J.B. Baillière, 1846). Referred to by Smith and Berg.

52. E. Séguin Idiocy: Its Treatment by the Physiological Method (New York: William Wood & Co., 1866) p.381.

53. C. Lasegue "On the Pathological Anatomy of Cretinism", Archives Generales de Medecine, 4<sup>trieme</sup> Serie, Tome xxvi (1851): in Edinburgh Medical and Surgical Journal 77 (1852): 348. And G. Ferrus "Observations upon Cretinism, its causes and the probable means of prevention." Archives Générales, Février et Mars (1851) pp. 231 & 353: in Edinburgh Medical and Surgical Journal 77 (1852): 485.

54. J.L.H. Down op. cit. note 1 and J.L.H. Down op cit. note 2.

55. R. Hunter and I. Macalpine op. cit. note 20 p.xliii.

56. W. F. Bynum op. cit. note 31 pp.457-458.

57. J. Conolly "The Ethnological Exhibitions of London 1855", in R. Hunter and I. Macalpine op. cit note 20 p.xliii.

58. Quoted by R. Hunter and I. Macalpine op. cit note 20 p.xliii.

59. J.L.H. Down op. cit. note 1 :in The Origins of Modern Psychiatry p.16.

60. Ibid. pp.16-17.

61. Noted by L. Penrose op. cit. note 8.

62. J.L.H. Down op. cit. note 1 p.17.

63. Apparent for example from the similarity between Down's reasoning in his ethnic classification and that displayed by Morel in his treatise. This is strikingly seen in the section of Morel's work on the "Varieties of the Human Race" which appeared in the Medical Circular X (1857). Morel argued the case for the unity of mankind and cited cretins, imbeciles and idiots as examples of profound degenerations. Morel also stated his belief that the savage Negro in the course of degenerations could be made to revert to a more "perfect type". See pages 150, 221. Incidentally, Richard Walter has credited Benedict August Morel with originating the concept of degeneration in the psychiatric sense in his major works: 'Traite des dégenérèscènces physiques, intellectuelles et morales de l'espèce humaine et des causes qui produisent ces variétés malades' (1857) and 'Traité des malades mentales' (1860). However, this is clearly not the case; both Séguin and Howe some ten years earlier had considered the insane and idiots to be degenerates. Howe, for example, had noted the apparent relationship between the two; a form of insanity was sometimes found in the parents of the 'idiots', whom he



had studied, and these parents he believed "were hereditarily predisposed to affections of the brains, causing occasional insanity." Howe believed that degenerate offspring were produced by a violation of natural laws; and this theory had been a widely held one in Massachusetts since the first superintendent of the Worcester Asylum (opened 1833) had adopted it to explain the occurrence of insanity. For further details see R. Walter "What Became of the Degenerate?" Journal of the History of Ideas XI (1956): 423. S. G. Howe "On the Causes of Idiocy" in The History of Mental Retardation op. cit. note 25 p.34. For a discussion of the concept of degeneration in French psychiatry see I. Dowbiggen "Degeneration and hereditarianism in French mental medicine 1840-90: psychiatric theory as ideological adaptation": in The Anatomy of Madness Vol.1 edited by W. F. Bynum et al. (London: Tavistock Publications, 1985) p.188.

64. G. W. Stocking "French Anthropology in 1800" in Race, Culture and Evolution: Essays in the History of Anthropology (London: Collier Macmillan, 1968) pp.21-22.

65. Geoffroy Saint-Hilaire's embryological work is described by J. Oppenheimer in "Teratology and Experimental Embryology", Bull. of the Hist. of Med 42 (1969): 145-159.

66. Quoted by Ivor Kraft in "Séguin and Nineteenth Century Moral Treatment of Idiots" Bulletin of the History of Medicine XXV (1961): 395.

67. Stephen Jay Gould Ontogeny and Phylogeny (Cambridge: Belknap Press, 1977), p.47.

68. Discussed by W. F. Bynum op. cit. note 31 p.346.

69. Ibid.

70. Ibid.

71. Ibid. p.348.

72. R. Chambers Vestiges of the Natural History of Creation 1st ed., (London: Churchill, 1844) p.309.

73. Ibid. p.306.

74. J.L.H. Down Annual Report Royal Earlswood Asylum (1861) Archives Royal Earlswood Asylum.

75. S. G. Howe "On the Causes of Idiocy" (1848), in The History of Mental Retardation eds. Marvin Rosen, Gerald R. Clark, Marvin S. Kivitz, 2 vols. (Baltimore: University Park Press, 1976), Vol.1 pp.33-60.

76. See J.L.H. Down (1887) On Some of The Mental Affections of Childhood and Youth (London: J. A. Churchill, 1887).
77. See H. Odom "Generalisations on Race in Nineteenth Century Physical Anthropology" Isis 58 (1967): 7.
78. Quoted by K.R.H Mackenzie, "Obituary Notice" Anthropological Review vi (1866): p.lxxix.
79. J.L.H. Down op. cit. note 1 pp.17-18.
80. J. Oppenheimer op. cit. note 65 p. 150.
81. R. Chambers op. cit. note 72 pp.279-280.
82. Dorothea Dix's involvement in lunacy reform in Scotland is described in detail by Margaret Thompson in "The Mad, the Bad and the Sad: Psychiatric Care in the Royal Edinburgh Asylum (Morningside), 1813-1894" (Boston University, Ph.D, 1984) pp.49-54.
83. A. Mitchell "On the Influence which Consanguinity in the Parentage Exercises on the Offspring" Edinburgh Medical Journal x (1865): 895.
84. In 1863, for example, there were only nine pupils at the Edinburgh School. In this year it transferred to Larbert and became the Scottish National Institution for Education of Imbecile Children. At the first election, out of thirty eight applicants only four were elected and two were nominated.
85. Discussed by P. Achenbach op. cit. note 10 p.123.
86. S. G. Howe op. cit. note 75 p. 34.
87. Ibid. p. 33.
88. Ibid. p. 36.
89. Ibid. p. 34.
90. A. Mitchell "The Connexion between Twin Births and Idiocy" Edinburgh Medical Journal viii (1862): 387.
91. A. Mitchell "On Two Peculiarities Occurring Frequently in the Obstetrical History of Women who have Born Idiots" Edinburgh Medical Journal viii (1863): 1142.
92. A. Mitchell "Dr. Mitchell's Statistics of Idiocy" Edinburgh Medical Journal xi (1866): 639-645.

93. Ibid. pp.643-644.
94. A. Mitchell "Difficult Parturition as a Cause of Idiocy" Edinburgh Medical Journal viii (1862): 387.
95. A. Mitchell op. cit. note 83 p.786.
96. A. Mitchell op. cit. note 92. p.643-644.
97. A. Mitchell "Traumatic Idiocy", Edinburgh Medical Journal xi (1866): 938.
98. A. Mitchell op. cit. note 91 p. 1144.
99. T. Willis Practice of Physick (London, 1684), discussed in P. Achenbach op. cit. note 10 pp.37-49.
100. F. Battersby "Observations relative to the state of the skull and of the brain in congenital chronic hydrocephalus, and to idiocy and paralysis attending it with cases", Edinburgh Medical and Surgical Journal 75 (1851): 10.
101. Ibid. p.1.
102. C. Lasegue op. cit. note 53 p. 488.

### CHAPTER THREE

#### DOWN'S REDEEMABLE DEGENERATES AT EARLSWOOD

Down's study of the 'Mongolian idiot' at Earlswood Asylum was conducted within the Christian-ethnological-educational-medical structure which was described in the previous chapter. His investigations took three forms: firstly, the determination of his/her mental and physical characteristics and defects, so that the educational programme could be tailored to these; secondly, the discovery of the cause of this form of 'idiocy', so that the care of the 'Mongol' could be directed, if possible, at countering its effects; and thirdly, an evaluation of the success of this specialised 'judicious treatment' - an important contribution to the anthropological debate of how far a suitable environment could overcome incomplete and imperfect development. This last question was clearly one with wide social implications, not least for determining whether or not the Negro in America could be educated for independent 'civilised' existence.

I shall now examine each of these in some detail.

#### The Characteristics of people with Down's syndrome and their education

Before I discuss the specific characteristics, which Down attributed to people with Down's syndrome, and the relationship of these to their education, it is

necessary to consider one of the assumptions, which was made. This was that people with Down's syndrome constitute a particular 'type' of human being. For Down, this meant that it was only necessary for him to study one of these people in order to be able to predict all the mental and physical characteristics of other similarly affected people. He wrote, for example:

The subjects of this type assume the Mongolian type; and while they present a marked similarity in external conformation, they are characterised by the same mental and moral peculiarities; so that given a case of the Mongolian type...it is possible to predicate the extent of response to training that may be expected, and the tendencies it will evince.<sup>1</sup>

Thus, the variation between 'Mongolian idiots' was considered to be minimal, so that individual differences could be ignored. This, indeed, was the prevailing view of the 'primitive' in both the Ethnological Society and the Anthropological Society at the time, and had been clearly expressed by James Hunt, the president of the newly formed Anthropological Society, who stated in the journal of this society:

In the lower types, indeed, individuality in the nobler senses of that very expressive and much embracing term, is strictly speaking unknown. Individualised personalities, really characterized by originality and by the accompanying independence in thought and conduct are generally found to present physical as well as moral attributes indicative of peculiarly effective development at least in certain directions. The head and face of Caesar were no doubt especially Roman. Specialization is the test of development. We begin now then to understand how it is that the higher races manifest more individuality than the lower; they are less foetal in their character both morally and physically. It has long been observed that the Negroid and Mongoloid races are far less distinctly marked physiognomically than the Caucasian. They keep much

closer to the common type; we may add, in mind as well as body. And among Caucasian peoples, the same remark applies to the Slavons, who are, it may be observed parenthetically, to Europe, what the Mongols proper are to Asia, the imperfectly developed children of the North-Eastern Wilderness.<sup>2</sup>

This assumption had clearly been made when Down described all 'Mongolian idiots' as imitative in his paper on the ethnic classification of 'idiots'. He wrote:

They have considerable powers of imitation even bordering on being mimics. They are humorous and a lively sense of the ridiculous often colours their mimicry.<sup>3</sup>

A later paper shows that this generalization was simply based on one or two incidents at the asylum which had stood out in his mind:

Several patients [with Down's syndrome], who have been under my care have been want to convert their pillow slips into surplices and to imitate, in tone and gesture, the clergyman or chaplain they have recently heard. Their power of imitation is, moreover, not limited to things clerical. I have known a ventriloquist to be convulsed with laughter between the first and second parts of his entertainment on seeing a Mongolian patient mount the platform and hearing him grotesquely imitate the performance with which the audience had been entertained. They have a strong sense of the ridiculous; this is indicated by their humorous remarks and the laughter with which they hail accidental falls, even of those whom they are most attached.<sup>4</sup>

Down's interest in imitativeness stemmed from the fact that it was one of the mental characteristics believed necessary for success in the educational programme which was based on Séguin's physiological method. Down had actually corresponded with Séguin and<sup>5</sup> had been sent a copy of his book describing his methods (an elaborate system of sensori-motor drills intended

for all 'idiots'). Imitation of the teacher by the 'idiot' was considered to be the main psychological mechanism needed to accomplish the drills.

Much effort had previously been expended by the staff at Park House and Essex Hall in training the 'idiots' to be imitative as over half of the total population at Park House had regularly been drilled.<sup>6</sup> This group is likely to have included people with Down's syndrome as those not being drilled were more severely handicapped than people with Down's syndrome generally are.

At Earlswood, where they were transferred,<sup>7</sup> 'imitativeness' was again fostered by simple exercises, so that it is probable that everybody had become so accustomed to being instructed to copy their teachers, that any adult whom they were also expected to watch and listen to, for example a clergyman or an entertainer would have appeared as someone to be imitated. The laughter accompanying the attempt of an individual with Down's syndrome to imitate one of these other adults is likely to have caused him/her to have perceived it as behaviour to be repeated in order to receive the same 'reward' of attention and approval again. The fact that Down grouped people with Down's syndrome together, and the probability that such behaviour would have been copied by other members of the group for similar attention-seeking reasons, explains how an apparent association between Down's syndrome and imitativeness

could have been first established.

Because of its association with the educational drills, 'imitation' was one of the skills printed in the case books for assessment by the medical superintendent. However, Down clearly did not obtain any evidence from these in support of his assertions because he did not enter the ethnic group which he believed a patient corresponded to in the case books,<sup>8</sup> nor did he record any ethnic characteristics. His failure, in practice, to categorize each patient in this way probably resulted from the great difficulty he would have had in assigning anyone with one of the congenital abnormalities other than Down's syndrome to a particular 'primitive' race. This, no doubt, also explains why 'Mongols' were the 'type', whom Down gave most information about in his papers; they were the only 'type' he had really been able to study.

Another characteristic, which Down attributed specifically to 'Mongols' in his ethnic classification (1866) was abnormality of 'the co-ordinating faculty'. In a later paper (1876), however, he considered this to be a general accompaniment of imbecility, stating that:

In all imbeciles there is a striking want of co-ordination in the muscular system.<sup>9</sup>

Down's attention was directed at the 'co-ordinating faculty' because, like imitation, it was one of the skills needed for many aspects of the educational



programme. However, it was, of course, Séguin who originally observed a relationship between 'idiocy' and the 'co-ordinating faculty', and who consequently incorporated physical exercises designed to utilise and therefore strengthen every muscle in his physiological method. The practical aim of these was to enable the patients to accomplish those functions which develop naturally in the 'normal' child: walking, chewing, gripping, talking etc.. At Earlswood, a large proportion of the people there had, indeed, not accomplished one or other of these: of the young children (in 1861) approximately one quarter had not yet learnt to walk and one half to feed themselves; of the older people, about one half of the girls and one third of the boys needed to have their food minced because they could not grip or manipulate a knife or fork.<sup>10</sup>

However, as different people had different 'defects' not everyone exercised each set of muscles to the same extent. It is clear that Down also attributed the difficulty which people with Down's syndrome have with their speech (he described their speech as "thick and indistinct")<sup>11</sup> to their problem with co-ordination, as he had much faith in the capacity of a "well directed scheme of tongue gymnastics"<sup>12</sup> to improve it "very greatly."<sup>13</sup> He also believed that "inordinate size of the tongue" could be responsible for the "defective power of articulation."<sup>14</sup> In addition to the tongue

exercises, Down had another method of promoting speech. This was the furnishing of a cabinet of objects, "the utterance of the names of which included all the sounds of the English language."<sup>15</sup> (Object teaching was not only an integral part of Séguin's 'physiological method', it was also a highly popular nineteenth century method of instruction, the origins of which can be traced to Pestalozzi).<sup>16</sup>

Down also attributed a behavioural characteristic to the person with Down's syndrome - obstinacy. He wrote:

Another feature is their great obstinacy - they can only be guided by consummate tact. No amount of coercion will induce them to do that which they have made up their minds not to do. Sometimes they initiate a struggle for mastery, and the day previous will determine what they will or will not do on the next day. Often they will talk to themselves, and they may be heard rehearsing the disputes which they think will be the feature of the following day. They, in fact, go through a play in which the patient, doctor, governess, and nurses are the Dramatis Personae - a play in which the patient is represented as defying and contravening the wishes of those in authority. Whether it be the question of going to church, to school, or for a walk, discretion will often be the better part of valour, by not giving orders which will run counter to the intended disobedience, and thus maintaining the appearance of authority while being virtually beaten.<sup>17</sup>

In such a large institution as Down directed, he is only likely to have had his attention drawn to the behavioural characteristics of an individual when s/he was reported to him for causing some form of difficulty. As people with Down's syndrome do not seem to have been violent or verbally abusive, obstinacy was probably the only negative characteristic which he would have been made

aware of in their case. With some of the other cases Down appears to have had more serious problems. For example one of the patients was described as having "set a trap for Dr. Down when he offended him." Subsequently, the same man "kicked a panel out of a door in rage."<sup>18</sup>

The 'obstinacy' which was shown by the people (or, quite possibly, a single person) with Down's syndrome at Earlswood can probably be explained, in large part, by the style of management there. Down presided over an authoritarian, albeit mild regime. He certainly did not even entertain the possibility of sharing power or decision making with his patients; as he considered that he knew best, they obviously should do exactly as he asked, and therefore have little personal freedom. He adopted, too, this same form of government with his staff, and therefore stated:

The whole system [of treatment] must have unity of origin and unity of execution. It should be, as far as possible, the reflex of one mind [his] and the executive should carry out the purpose of one will [his].<sup>19</sup>

He had obviously communicated to his teaching staff that they should not use their own initiative in educating their pupils as the reports of the school-master and mistress began with the statement:

We wish it to be understood that the whole of the educational arrangements are under the direction of their Resident Medical Superintendent, who adapts them to the mental and physical condition of each inmate.<sup>20</sup>

Down may well have been influenced in his thinking by John Conolly who perceived asylum staff as simply the "instruments" of the superintendent of the institution.

Conolly considered, too, that it was essential that authority over them was not divided and that "due subordination"<sup>21</sup> to the head existed. Conolly's, like Down's autocracy, was of a benevolent nature and involved kind, encouraging, supportive and protective<sup>22</sup> treatment of the staff, as well as of the patients.

At Earlswood, submission to authority by the pupils was essential to enable the highly teacher directed programme to be implemented; this must have required very good teacher control because of its emphasis on imitation of physical exercises, sounds, words etc. Control was apparently accomplished by a very high staff to student ratio (between three and four<sup>23</sup> pupils to one member of staff) and by a behavioural approach to management in which Down stated:

The deprivation of the love of their teachers should be the greatest punishment and the manifestation of it the highest reward.<sup>24</sup>

Other punishments and rewards, however, were adopted, and Down remarked that:

The tact of the teacher will be called into exercise, in devising the reward or punishment to suit the special case.<sup>25</sup>

He, however, never used corporal punishment, and, unlike Conolly at Hanwell, did not employ seclusion either as a form of treatment to calm 'excited' patients<sup>26</sup> or as a punishment.

Another reason that Down considered obedience to be important was that Earlswood was believed to be a

'model' asylum, so that it was frequently visited by people who might be expected to judge the institution on how well its pupils were behaving, and he appears to have considered that displays of obstinacy would not make a good impression. He thought, too, that they would also assess other superficial features of the asylum, as he paid much attention to making it look attractive; this is graphically described in the 1862 annual report:

The corridors have been partially decorated with singing birds in ornamental cages; glass globes containing gold fish have been suspended and many of the windows enlivened by baskets of flowers and ferns. The walls have been ornamented with engravings...Several presents of toy shrubs have been planted and garden seats introduced.<sup>27</sup>

Rather incongruously, at the same time as this was being accomplished (1862-1863) eighty people<sup>28</sup> died from epidemics of measles and scarlatina, and from phthisis.

Another characteristic of people with Down's syndrome, which Down noted, was their feeble circulation, which he believed was responsible for their educational 'retrogression' in the winter.<sup>29</sup> (The manifestations of poor circulation of people with Down's syndrome were probably caused by their heart defects or the possible problem they may have with thermoregulation.) The reason that he believed that there was a relationship between poor circulation and educational capacity was the crucial importance which he attached to blood supply in the brain, which could, he believed, be assessed by the colour of the 'vesicular neurine'.<sup>30</sup> One method of improving the nutrition to the

brain was, he considered to improve the quality of the blood.<sup>31</sup> This was the reason why Down placed so much emphasis on diet, determining exactly what everyone should eat. He recorded in one of his annual reports that:

I am conscious of the importance of a well regulated diet for a class of patients whose mental disease has a close connection with physical condition, and whose instincts are not to be relied on in the selection of food, great pains have been taken to arrange a diet table, which should meet the requirements of the case. Experience has taught us the value of this.<sup>32</sup>

For people with Down's syndrome, he advocated a diet, which consisted of "highly azotised food with a considerable amount of oleaginous material"<sup>33</sup>. Such a diet high in protein and oil may possibly, however, have done more harm than good; it has been shown that over consumption of lipids leads to reduced resistance to infection (methyl palmitate for example, diminishes antibody responses and polyunsaturated fatty acids may also be immunosuppressive).

#### The cause of Down's syndrome and the associated treatment

Dr. Down briefly referred to the aetiology of the 'Mongolian idiot' in his ethnic classification (1866) stating:

They are for the most part instances of degeneracy in the parents.<sup>34</sup>

Down had kept special records of the occurrence of tuberculosis in the families of all his patients at

Earlswood, and analysed his post-mortem records for evidence of tubercular deposits.<sup>35</sup> His conclusions from these were published in 1867 in a paper entitled 'Dr. Down on idiocy and its relationship to tuberculosis'. However, he did not cite any specific statistical information pertaining to the 'Mongolian type' and simply stated the following without any numerical evidence:

The Mongolian type ... occurs, according to my observation, in greater degree when the tubercular element is strongly impressed, still more where it exists in both branches of the family and greatest if consanguinity is added thereto.<sup>36</sup>

One of the reasons that he had examined numerically the possibility of an association between 'idiocy' and tuberculosis was his belief that 'more than an accidental connexion' between tuberculosis and insanity had been shown to exist.<sup>37</sup> Down, in keeping with contemporary thought, believed that insanity and idiocy were closely related conditions, and that the insane, like his 'ethnic idiots' were products of degeneration.

Evidence for a relationship between insanity and tuberculosis had come from post-mortems carried out in a number of asylums; at the Bicêtre ( where Séguin had taught a class of 'idiots'), Pinel(1809) had noted tuberculosis in twenty two out of one hundred and thirty five post-mortems, and Esquirol(1838) had noted it in sixty two out of one hundred and seventy six post-

38  
mortems.

In addition, studies of the nervous system had revealed connections between the brain and the lungs demonstrating an apparent physiological mechanism for the connection between insanity and tuberculosis.<sup>39</sup>

Such investigations had already led McKinnon to assert in the 1840s that scrofulous and insane<sup>40</sup> constitutions were alike.

More recent evidence for a relationship between abnormal mental states and tuberculosis had come in 1861 from another physician, James Copland, who perceived tubercular illnesses as culpable deviations from a normal, moral healthy state. He speculated that intense or prolonged mental exertions, depressing mental emotions, nostalgia, disappointed hopes and affections, and excessive sexual indulgence could all be expected to<sup>41</sup> weaken the body's resistance to putrefying influences.

Down stated falsely however:

Amongst the influences which have been regarded as connected with idiocy, very little attention has been given to that of tuberculosis, and I am not aware of any observations having been made with reference to the connexion of these maladies.<sup>42</sup>

Actually, the physiognomist Sir Arthur Morison had stated, some ten years earlier than Howe, that it was his belief that tuberculosis was the cause of 'idiocy' which occurred during post-natal development as it was capable of "enfeebling the child at an early<sup>43</sup> age."

While it is quite probable that Down would not



have been aware of Morison's theories, it is not the case that he was unaware of Howe's survey, which had emphasised a relationship between scrofulous parents and 'idiot' offspring.<sup>44</sup> Down had actually compared the results of Howe's investigations with his own in an earlier paper on intermarriage<sup>45</sup>, and several of his statements in his paper on tuberculosis are almost lifted from Howe's work, for example Down wrote:

No-one who has had an opportunity of investigating the influences which are at work in the production of congenital mental diseases can fail to be struck with the fact that they are, for the most part, to be traced to some inherent vice of constitution in the progenitors. He will discover in the parents elements of degeneracy which must have had their share in producing the catastrophe. He will notice how by degrees the stock has deteriorated. He will be able to estimate how intemperance or sensuality leads slowly but surely to idiocy- how physical weakness of the parents culminates in the blight of the child.<sup>46</sup>

Howe had similarly written of the parents of 'idiots':

One or other, or both of them were very unhealthy or scrofulous; or they were hereditarily predisposed to affections of the brains, causing occasional insanity; or they had intermarried with blood relatives; or they had been intemperate, or had been guilty of sensual excesses which impaired their constitutions.<sup>47</sup>

Down's failure to mention that Howe had already concluded that 'scrofula' and 'idiocy' were closely related conditions may have resulted from Down's possible belief that Howe's scrofula and the 'tubercular taint'<sup>48</sup> which he looked for in the parents of the 'idiots' at Earlswood, were not the same conditions. Certainly, Howe established extremely loose diagnostic

criteria for recording a parent as of 'scrofulous temperament'. He wrote:

They do not stand erect and firm; they seem rather to be trying to hold their head and shoulders up by their muscles than to rest them firmly and gracefully poised upon the spinal column and lower extremities.

Red and sore eyelids, turgid lips, spongy gums, swellings in the glands, Liability to eruptions and diseases of the skin, mark this class of persons. The skin is generally fair; the muscles flabby; the hair is light - seldom hard, crispy and strong. They are not liable to fevers and violent inflammations as others are, but when unwell nature relieves herself by sores, ulcers, eruptions, & c.

The peccant humours show themselves upon the surface in various ways: swellings and ulcerations of the glands, blotches, tetters, ring worms, rash, salt rheum, & c.<sup>49</sup>

Down does not list the signs which he used to establish that a parent had a 'tubercular taint' so that it is difficult to assess what he was recording.

Another probable antecedent of Down's theory that tuberculosis was a cause of Down's syndrome was an 1858 report by Dr. Greenhow on the prevention of tuberculosis. This had contained the proposition that tuberculosis was hereditary and could "produce a progressive degeneration of the race."<sup>50</sup>

While the preceding account may explain why Down should have investigated the relationship between tuberculosis and 'idiocy', it does not answer the question of why he should have believed that tuberculosis was of key importance in the aetiology of his 'Mongolian type'. In fact, he had collected certain pieces of information which did not appear to support this theory.

Firstly, his investigations had clearly revealed that tuberculosis occurred in the parents of 'idiots' other than his 'Mongolian type'; he believed that ten<sup>51</sup> per cent of the 'idiots' at Earlswood were Mongolian, but had prepared the following statistics implying that tuberculosis was associated with 'idiocy' in general, or at least with other varieties of it besides the 'Mongolian':

In 31 per cent of the cases of idiocy which have come under my care, or about whom I have been consulted, tuberculosis existed in an unmistakable manner in the family of the progenitors; in 6 per cent the tubercular element was found on both sides of the family; in 10 per cent it was due to the father; while in 15 per cent the tuberculosis belonged to the mother.<sup>52</sup>

This was clearly not seemingly compatible with another of Down's statements:

It [tuberculosis] impresses special characters thereon, characters which impart a strong family likeness to the subjects of this class [Mongolian].<sup>53</sup>

Secondly, was the fact that he had collected little evidence that Howe's general hereditarian framework of 'idiocy' was a valid one; inspection of the case books from Earlswood reveals that only relatively rarely had Down been able to find any of Howe's proposed causes of 'idiocy'. Insanity in one or both parents was found in only twelve cases (out of four hundred and ninety six) ie. in 2.4% of the cases; the specific entries were a hereditary taint of insanity on both sides of the family(1849), insanity on the part of the father during cohabitation(1859), insane father - died by his own hand six weeks after the mother became

pregnant(1859), insane mother(1859), father in a lunatic asylum for nine months from excitement after sunstroke(1860), father died from brain disease(1860), father died from disease of the brain(1860), father nervous and irritable(1864), mother has weak intellect(1865), father died from cranial decay(1867), mother an inmate of Colney Hatch Asylum(1867), grandmother died insane and great uncle also insane(1867).

He found intemperance in the parents of only four (out of four hundred and ninety six cases) ie. in 0.8% of the cases, and 'sensual excesses' were only found in a parent of one of the cases ie. in 0.2% of the cases.

The most commonly entered causes of congenital 'idiocy' in the books, however, related to factors acting during the mother's pregnancy ie. environmental conditions, which by affecting the mother's mental or physical health could produce a premature arrest of pre-natal development; the aetiology of one hundred and six cases (out of four hundred and ninety six cases) ie. 21.4% of the total number of cases, was explained in this way. Of these cases the most frequently recorded cause was 'fright of mother' (eighty three cases). This was, of course, a traditional explanation for the production of abnormal children and had frequently been combined with the concept of 'maternal impression' ie. the notion that characteristics of the object of the

fright could be communicated to the foetus. At Earlswood<sup>54</sup> the following maternal impressions were recorded: mother much alarmed by an insane person when in the early stages of pregnancy(1857), mother looking at mentally afflicted mother-in-law(1858), mother frightened by an image at third month(1858), mother frightened by an idiot during pregnancy(1860), mother frightened by a horse(1861), seeing another of her affected daughters(1861), mother frightened by a toad during pregnancy(1864), fright from a cat(1865), fright of mother by a large pig(1866).

These explanations, however, did not simply represent popular beliefs; in 1824, the brother-in-law of John Hunter, Sir Everard Home, had claimed credit for the discovery of the nerve in the umbilical cord through which the maternal impression was transmitted.<sup>55</sup> Down himself also attached "immense importance to the emotional life of the mother during pregnancy,"<sup>56</sup> and felt "convinced [that] it [was] one of the most potent of all the pre-efficients of idiocy."<sup>57</sup> His beliefs stemmed, in part, from those of his teacher, Dr. W. B. Carpenter, who had described to him the medical consequences of the siege of Landau in 1793:

In addition to a violent cannonading, which kept the women in a constant state of alarm, the arsenal blew up with a terrific explosion, which few could bear with unshaken nerves...

Out of ninety two children born in that district, within a few months afterwards, sixteen died at the time of birth, thirty three languished from eight to ten months and then died, eight became idiots and died before the age of five years, and two came into the

world with numerous fractures of the bones of the limbs, probably caused by irregular uterine contractions.<sup>58</sup>

Down had therefore looked for similar dramatic events during the pregnancy of the mothers of the people at Earlswood; he recorded, for example, the Bristol Riots and the Indian Mutiny as possible causes in the case books.

Why, then, should Down have believed that tuberculosis was the cause of the characteristics of the 'Mongolian type', as opposed to an environmental cause acting during pre-natal development, when he attached so much importance to the latter?

The answer to this question has two parts. Firstly, Down did not believe that a particular variety of 'idiocy' was necessarily produced by a single cause, for example, women with a poor constitution, possibly suffering from tuberculosis, would, in Down's opinion, be more easily frightened during their pregnancy and therefore be especially at risk of having an 'idiot' child.<sup>59</sup> (In the case books, the fright was listed as the actual cause, as opposed to poor parental constitution). Intermarriage would further increase the risk if both parents had a poor constitution.<sup>60</sup>

The following case studies possibly relating to boys with Down's syndrome (judging from the birth order) show how Down believed the various causative factors could interact:

A.E.V.S. male, born at Walworth. The father and mother were first cousins. The father was delicate,

sound in mind, but intemperate, his relations healthy. The mother healthy and of sound mind, had given birth to twins twice, her family generally consumptive. A.E.V.S. is the eighth-born, and one of his brothers died from consumption. The mother was frightened by a cat during the seventh month of her pregnancy, and was ill a week in consequence. She attributes the idiocy to her husbands habitual intemperance.<sup>61</sup>

J.T.B. male, born at Wingham. Father and mother third cousins; father healthy and of sound mind, very deaf; his cousin became blind from study. Mother healthy, but all her relations consumptive. J.T.B. is the seventh born, and is a twin-child; his twin-sister is very intelligent, as are also another sister and eight brothers.<sup>62</sup>

The second reason was that Down had additional evidence which suggested to him that tuberculosis must be the key causative factor of the 'Mongolian type'. This was that people with Down's syndrome regularly died of tuberculosis at Earlswood at a young age.<sup>63</sup> To Down this logically appeared to indicate that they had inherited a consumptive diathesis.

Having discussed Down's beliefs regarding the aetiology of Down's syndrome, I shall now consider the ways in which these related to the treatment of the 'Mongols' at Earlswood.

Firstly and specifically, Down considered that tuberculosis was most likely to develop when the blood supply to the tissues was not good and their malnutrition was therefore likely to occur.<sup>64</sup> Why this was particularly likely to happen in individuals with a hereditary diathesis for the disease is unclear, but teratological/embryological theories sometimes involved the notion that arrest of development could occur through inadequate blood supply to certain tissues of

the foetus, for example Geoffroy Saint-Hilaire believed that adhesion of the foetus to the embryonic membranes could cause this.<sup>65</sup> Down therefore provided a diet (discussed in the previous section), which he considered capable of compensating for this. In addition, importance was attached to fresh air and Down stated:

No opportunity should be lost for daily out-door exercise.<sup>66</sup>

This, of course, would have increased the blood supply to the surface tissues.

He also fought strongly for the retention of the farm, partly for this reason. It had been suggested that the land should be sold in order to raise money, because farming it produced no profit. Down stated that the implementation of this idea would be a "grave calamity."<sup>67</sup>

In keeping with this theory, the term 'sanatorium' was used to describe the accommodation at Earlswood (from 1861). A sanatorium, at this time, was generally a centre specifically for the treatment of tuberculosis where fresh air and good food were important aspects of the treatment. The first sanatorium for tuberculosis had been established by Hermann Brehmer in the Waldenburg mountains in 1859,<sup>68</sup> but Guggenbühl's institution for 'cretins' which was a similar institution in that it emphasised the importance of fresh mountain air (the rationale for this was that it was believed capable of counteracting the effects of the atmosphere at the



bottom of the Alpine valley, which was considered to have been the 'exciting' cause of cretinism) and good food, had been opened in the early eighteen forties in the Abendberg.<sup>69</sup> As stated earlier, Down had visited Guggenbühl's establishment.

The second way in which treatment related to Down's understanding of aetiology was through the moral environmental framework which they both were part of.

Down's treatment of the 'idiots' at Earlswood, therefore, not surprisingly involved an emphasis on the provision of optimal moral environmental conditions (as had been attempted at the Bicêtre, Abendberg and at Howe's school), as well as a "judicious combination of<sup>70</sup> medical, physical and intellectual" ones. He, in fact, went so far as to state that "the moral education of the<sup>71</sup> imbecile is of paramount importance."

Moral education included the teaching of the<sup>72</sup> 'idiot' to "subordinate his will to that of another." The 'another' at Earlswood was himself, although Down considered it could sometimes be God:

While attaining an amount of obedience to rule, because it is known to be the will of the head of the community, it is possible to engraft on this, in many cases, moral compliance and right doing, because they are believed to be the will of the Supreme.<sup>73</sup>

Down's moral philosophy also included a belief in the goodness of making all the patients self-supporting. He considered that "mere abstract or memoriter knowledge" was "of little value, everything which makes

him [the 'idiot'] practically useful makes him<sup>74</sup> proportionately happy." No doubt, Down had been strongly influenced by Séguin's positivism, which also<sup>75</sup> contained this assumption. In addition, the attainment of self-support also had the advantage that it enabled election cases to be retained after their five year term there had elapsed.

In keeping with these beliefs, as soon as Down became superintendent, he arranged that even the most severely handicapped cases were employed in the mat-<sup>76</sup> making shop at Earlswood. At Park House, as was described in the previous chapter, there had been no<sup>77</sup> attempt to make these people work. Another of Down's first actions was to see to it that all the beds in the establishment were made by the female pupils and that "in other departments of domestic labour their services<sup>78</sup> are brought into requisition."

This type of use of patients as institutional workers to reduce costs has been considered to be the<sup>79</sup> beginnings of what Vail labelled the dehumanizing process, but Down himself clearly believed that he was acting in the interests of both the 'idiot' and his/her family in preparing him/her for future 'usefulness'.

The improbability of people with Down's syndrome and the question of how far apparently incomplete pre-natal development could be overcome during post-natal development

Down's assessment of the improbability of the 'Mongol' and of other congenital ethnic 'idiots' was not

only of practical value for the prediction of the progress which these varieties of 'idiots' could be expected to achieve, but was also a contribution to the debate over the limits which an imperfect constitution imposed on the educability of an individual and on the level of 'civilization' which he or she could be made to attain. This question was of social and political importance because of its relevance to the question of slavery. Both monogenists and polygenists had managed to formulate arguments which supported its continuation. The polygenist suggested that the Negro race could never be civilized or attain independence because it was actually a different and inferior species from the Caucasian. The best environmental conditions, therefore, would never turn a Negro into a Caucasian.

In England, James Hunt, the president of the newly formed Anthropological Society and a polygenist, turned to history to support the case as the following extract shows:

The assertion that the Negro only requires an opportunity for being civilized is disproved by history. The African race have had the benefit of the Egyptian, Carthaginian and Roman civilizations, but nowhere did they become civilized. The many cases of civilized blacks are not pure Negroes; but in nearly every case where they had become men of mark they had European blood in their veins...Everywhere we see the European as the conqueror and the dominant race; and no amount of education will ever alter the decrees of Nature's laws.<sup>80</sup>

Hunt also stated that the Negro was quite content to be a slave:

Negro children are precocious but no advance in

education can be made after they arrive at the age of puberty - they still continue mentally children. It has been said that the present slave-holders of America no more think of rebellion amongst their full-blooded slaves than they do amongst their cows and horses.<sup>81</sup>

Anthropologists, like Hunt, differed from the members of the Ethnological Society in that their study of the Negro was not accompanied by the desire to raise or protect 'undeveloped races'. Indeed, the work of the Anthropological Society was entirely divorced from any moral considerations and this, its members believed, made the investigations value-free; in fact, they were actually saturated with their own values which generally included a great respect for powerful societies and individuals, and contempt for the down-trodden and exploited. The Ethnological Society had been, in part, an off-shoot of the Aborigines Protection Society and<sup>82</sup> had very strong missionary connections.

While such polygenists as Hunt could at least claim that their largely unsubstantiated reasoning was not illogical, the monogenist, who believed that a 'bad' environment or lifestyle had turned the 'civilized' Caucasian into the 'primitive' Mongolian or Negro, but discounted the possibility that a 'good' environment could reverse the process, could make no such claim. Perhaps this is why the fervent monogenist and slaveholder, the Reverend John Bachmann of South Carolina had to turn to the Bible to defend slavery. He wrote in the Charleston Medical Journal and Review:

All races of men including the Negroes, are of the

same species and origin. The Negro is a striking variety, and at present permanent, as the numerous varieties of domestic animals. The Negro will remain what he is, unless his form is altered by intermixture, the simple idea of which is revolting; his intelligence is greatly inferior to that of the Caucasians, and he is consequently, from all we know of him, incapable of governing himself. He has been placed under our protection...The vindication of slavery is contained in the Scriptures. The Bible teaches the rights and duties of masters, in order that the slaves should be treated with justice and goodness, and it enjoins obedience to slaves...The Bible furnishes us with the best weapons of which we can avail ourselves. It shows us that the ancient Israelites possessed slaves. It determines the duties of masters and slaves; and Saint Paul writes an epistle to Philemon to request him to take back a runaway slave. Our representatives in Congress have drawn their arguments from Holy Writ, and their adversaries have not ventured to tell them that the historical part of the Bible...is false and uninspired...we can effectually defend our institutions from the word of God.<sup>83</sup>

Bachmann's type of argument, however, was widely accepted in America because there was little evidence that the contemporary Negro was any different from his African ancestors.

Comparative anatomists like Robert Knox had taken the view that Negroes with characteristics, which he considered were associated with the Caucasian race, were freaks. He said of these people:

If such variations in form were frequent and permanent the race would in a century or two become entirely altered: now this, we know, never has happened. Such varieties extend only to a generation or two, and then cease, the primordial forms returning - those forms, namely, which are in unison with nature's great scheme and with the existing order of things...against the hereditary extension of these varieties stands the physiological law of non-vitality and extinction...nature checks the extension of all important varieties of structure, the individuals being either non-viable or non-productive.<sup>84</sup>

Before Down began his investigations at Earlswood,

the only information in England which actually related to the question of whether or not an individual who not only had abnormal mental characteristics (like the criminal or the lunatic), but also had abnormal physical characteristics (like the Negro or the Mongolian) could change his 'type' during his own life-time (and therefore, of course, have the capacity to produce less degenerate offspring) came from the parent institutions, Park House and Essex Hall. The objectivity of the progress reports from these was questionable, however, because of the urgent need which had existed to prove that the majority of the people in the institutions were progressing; the whole venture had initially been regarded as an experiment which could be terminated if it were unsuccessful. This was considered to be a real possibility. The need for scholastic education, as opposed to the simple reform of the insane, including the 'idiot', had not been recognised in England at the time, as Conolly was well aware. Twice, Conolly had instituted schools for the patients at Hanwell, and twice he had been forced to close them down by those involved in financing the institution. On their second establishment the committee had stated that the schools were "not merely for instruction of patients in reading and writing, and similar matters, but for the awakening and improving the intellectual state of the imbecile and idiotic."<sup>85</sup> Nevertheless, the school was still closed down because the cost of running it (salaries of the

school teachers<sup>86</sup> and the loss of the labour of the patients) was considered to be too great.

At Park House the subscribers had to be convinced that the education of the 'imbecile' and the 'idiot' was really producing a significant change in them, and therefore the early annual reports which were made available to the subscribers had contained regular entries about the progress made. The first described the early results:

Indeed the actual change to those who have the means of making comparison is exceedingly striking. Dr. Conolly looking on with a professional eye, lately remarked that it was so great in six months that he could hardly suppose the persons to be the same, and all who knew what it was at first and what it is now will be prepared to confirm this assurance.<sup>87</sup>

Subsequent reports had continued to present<sup>88</sup> evidence that the experiment was working: the second had described the grateful testimony of the children's<sup>89</sup> friends; and the third<sup>90</sup> had contained the actual number of those who had been taught to walk, talk, read, write etc., as well as a formal medical report by the gratuitous physicians of the institution (Drs. Conolly, Little and Callaway). These medical officers had commented that they expected some of the patients to be restored to their families capable of being usefully employed, and had expressed general "satisfaction with the deeply interesting experiment instituted and proceeding there."<sup>90</sup>

At these earlier institutions there was, however,

no published analogy of the congenital 'idiot' and the 'primitive' races, nor was there any actual anatomical or physiological evidence that any change in 'type' was occurring. In addition, at least part of the improvement observed could be attributed by the scientist simply to repression, which would perhaps have given the impression that the people had been transformed from a 'primitive' to a 'civilized' state. The establishment of order had been a top priority when Park House first opened as none of the people arriving there had been 'trained' for a life in such an institution, as the following extract shows:

In fact, the first gathering of the idiotic family was a spectacle unique in itself, sufficiently discouraging to the most resolved and not to be forgotten in after time by any. It was a period of distraction, disorder and noise of the most unnatural character. Some had defective sight, most had defective or no utterance, most were lame in limb or muscle and all were of weak and perverted mind. Some had been spoiled, some neglected and some ill-used. Clamorous, rebellious, sullen, perverse and some unconscious and inert. Some were screaming at the top of their voices, some making constant and involuntary noises from nervous irritation; and some terrified at scorn and ill treatment hid themselves in a corner from the face of man. Windows were smashed and the spirit of mischief and disobedience prevailed. It seems as if nothing less than the accommodation of a prison would meet the wants of such a family.<sup>91</sup>

Although Down placed, if anything, a greater emphasis on order and discipline, his concept of change or improvement in the 'idiot' also involved an actual physical alteration of the tissues in the brain, as well as in every other part of the body. Under the assumption that physical and mental characteristics were intimately



related to one another, he believed that the physical aspects of Séguin's programme would automatically alter the brain and therefore the intellectual and personal qualities of the individual. As the following extract shows, Down stated his deductions with characteristic certainty:

We secure by this means [physical training] an improved nutrition of the central nervous ganglia themselves which are influenced 'pari passu' with the development of the physical powers. It is impossible to bring into harmonious relation the muscles and the will without improving the physical quality of the brain and the other nervous centres.<sup>93</sup>

Such deductions, however, could hardly be classed as scientific evidence which could be used as an argument against slavery, and this probably explains why Down reported so regularly on the progress which the 'Mongol' was capable of. These, after all, were 'ethnic' individuals, whose improvement he had actually observed and studied himself. His confidence in the validity of his optimism must have been bolstered by Séguin's confirmation of their educability; Séguin had cited a case history of a furfuraceous cretin, M.A., describing the progress she was making. He wrote:

M.A. is nine years old, very small of her age, but quite gay and healthy. The rounded or shortened termini of all her linaments, the truncated nose, the unfinished-like fingers, the scanty red lids, the cracked tongue and lips, the cranium so evenly rounded like a cylinder, and the white, pulverulent covering of her rosy skin, all contribute to make her look half pitiable, half ludicrous. But with all her external drawbacks, she is fast improving, and a child deserving respect and affection. Other cases of a similar but aggravated character have been observed, but the description of their repulsive symptoms would not make us less ignorant of the true nature of their affection.

We have not seen enough of this affection to express any opinion upon it, but as a conjecture; and we hazard the hypothesis that it is a variety of idiocy connected with some form of hereditary cretinism. One more fact concerning them: several of them died young, of pneumonia, metastatic of erysipelas. The child chosen here as a good representative of the kind, M.A. shows that, in spite of their disagreeable appearance, they are morally good children to deal with; that, in spite of the heaviness of their cracked and thick tongues, they may learn to speak, and even become quite loquacious, with an incorrect utterance; and in spite of their apparent stupidity, they may acquire a stock of knowledge and of practical common sense; for in ten months M.A. had overcome the major difficulties of the training and began to learn and to behave like ordinary children- she but recently cast away as repulsive and incurable.<sup>94</sup>

Typical comments made by Down about his 'Mongolian idiots' were:

The power of progress is usually much greater than one would judge by an ordinary inspection.<sup>95</sup>

and

They are cases that very much repay judicious treatment.<sup>96</sup>

Thus the progress of the 'Mongolian idiot' at Earlswood, by definition, involved a physical and a mental change of constitutional type, and was therefore proof that the varieties of man were not fixed permanently.

\* \* \*

Down left Earlswood in 1868, having obtained an M.D. degree and been elected F.R.C.P. during the ten years that he was head of the institution. He took up private practice at 81, Harley Street, London, and also opened a private institution for 'feeble-minded' children at Teddington, Middlesex. He named the home

Normansfield in memory of an intimate friend and helper,  
Norman Wilkinson. The institution grew rapidly and  
eventually had 200 patients. After Down's death  
Normansfield was administered by his two sons, and later  
by his grand-son, so that for over 100<sup>97</sup> years its  
superintendent was a member of Down's family.

### CHAPTER THREE: NOTES

1. J. L. H. Down "Dr. Down on Idiocy and its Relation to Tuberculosis", Lancet ii (1867): 391.
2. J. Hunt "Race in Legislation and Political Economy", Anth. Review iv (1866): 120.
3. J. L. H. Down "Observations on an ethnic classification of idiots" Lond. Hosp. Clin. Lect. Rep. 3 (1866): 259-262.
4. J. L. H. Down On Some of the Mental Affections of Childhood and Youth, (London: J. & A. Churchill, 1887). There is no direct evidence that Down had considered people with Down's syndrome to be imitative because he attributed this characteristic to the Mongolian race. However, Steven J. Gould considers that "some familiarity with the literature of nineteenth century racism is required to read between the lines. The sophistication and complexity of Oriental culture proved embarrassing to Caucasian racists, especially since the highest refinements of Chinese society had arisen when European culture still wallowed in barbarism...Caucasians solved this dilemma by admitting the intellectual power of Orientals, but attributing it to imitative copying, rather than to innovative genius." Steven Jay Gould "Dr. Down's syndrome" New Scientist 86 (1980): 252.
5. The book is held in the library of the Royal College of Psychiatrists. Noted by D. J. Bicknell in The Origins of Modern Psychiatry edited by C. Thompson (Chichester: John Wiley, 1987) p.19.
6. Annual Reports Park House 1849 and 1853 Archives Royal Earlswood Asylum.
7. J. L. H. Down Annual report Earlswood Asylum, 1860 Archives Royal Earlswood Asylum.
8. Case books (male and female) 1859-1869 Archives Royal Earlswood Asylum.
9. J. L. H. Down "On the Education and Training of the Feeble in Mind" Transactions of the National Association of Social Science (1867) p. 11 (Reprint (1876) is held in the library of the Royal Society of Medicine).
10. J. L. H. Down Annual Report Earlswood Asylum, 1861 Archives Royal Earlswood Asylum.
11. J. L. H. Down op. cit. note 3.

12. Ibid.

13. Ibid.

14. J. L. H. Down "On the Condition of the Mouth in Idiocy" (1862) in On some of the Mental Affections of Childhood and Youth (London: J. & A. Churchill, 1887) p.163.

15. J. L. H. Down Annual Report Earlswood Asylum, 1862 Archives Royal Earlswood Asylum.

16. Noted by I. Kraft in "Séguin and 19th Century Moral Treatment of Idiots" Bull. of the History of Medicine xxxv (1961): 397.

17. J. L. H. Down op. cit. note 4. This was also quoted by Penrose and Smith in 1966 who commented uncritically that "mongols are considered to have personality and behavioural traits which are in some respects stereotyped." L. S. Penrose and G. F. Smith Down's Anomaly first edition (London: J. & A. Churchill Ltd., 1966) pp.54-55.

18. Noted by Séguin in E. Séguin Idiocy: Its Treatment by the Physiological Method (New York: William Wood & Co., 1866) p.442.

19. J. L. H. Down op. cit. note 9 p.9.

20. Schoolmaster and Schoolmistress Annual Report Earlswood Asylum, 1866 Archives Royal Earlswood Asylum.

21. John Conolly The treatment of the Insane without Mechanical Restraints First published in 1856 (Folkestone: Dawsons of Pall Mall, 1973) pp.99-100.

22. Ibid. p.100.

23. Calculated from figures given in the annual reports of the number of patients and staff.

24. J. L. H. Down op. cit. note 9 p.13.

25. Ibid. p.13.

26. Ibid. p.13.

27. J. L. H. Down Annual Report Earlswood Asylum, 1862 Archives Royal Earlswood Asylum.

28. The epidemics were mentioned in the annual reports by Down, but the numbers dying were not. These were stated in his paper on tuberculosis, op. cit. note 1.

29. J. L. H. Down op. cit. note 3 and note 1 p.391.
30. J. L. H. Down op. cit. note 9 p.10.
31. Ibid.
32. J. L. H. Down Annual Report Earlswood Asylum, 1861 Archives Royal Earlswood Asylum.
33. J. L. H. Down op. cit. note 3.
34. Ibid.
35. J. L. H. Down op. cit. note 1 p.391.
36. Ibid. p.392.
37. J. L. H. Down op. cit note 15 p.356.
38. Noted by E. R. N. Grigg "Historical and Bibliographical Review of Tuberculosis in the Mentally Ill." Journal of the History of Medicine and Allied Sciences, X (1955): 58.
39. Ibid.
40. Ibid. p.98.
41. F. B. Smith The Retreat of Tuberculosis 1850-1950 (London: Croom Helm, 1988) p.27-28.
42. E. R. N. Grigg op. cit. note 38 p.356.
43. Sir A. Morison The Physiognomy of Mental Diseases 2nd edition First published in 1843 (Stuttgart: Medicina Rara, 1974) Section on Idiocy.
44. S. G. Howe "On the Causes of Idiocy" in The History of Mental Retardation Vol.1 edited by M. Rosen, G. Clark, M. Kivitz (Baltimore: University Park Press, 1976) pp.50-53.
45. J. L. H. Down "Marriages of Consanguinity in Relation to Degeneration of Race", London Hospital Reports (1866) in On Some Mental Affections of Childhood and Youth, (London: J. & A. Churchill, 1887) p.200.
46. J. L. H. Down op. cit. note 1 p.356.
47. S. G. Howe op. cit. note 44 p.34.
48. J. L. H. Down op. cit. note 1 p.391.
49. G. Howe op. cit. note 44 p.51.

50. Ruth Hodgkinson Science and Public Health (Milton Keynes: Open University Press 1975) p.53.
51. J. L. H. Down op. cit. note 3.
52. J. L. H. Down op. cit note 1 p.391.
53. Ibid. p.392.
54. Male and female case books Earlswood asylum Archives Royal Earlswood Asylum.
55. Noted by O. E. Clark in "The Contribution of J.F. Meckel the Younger to the Science of Teratology", Journal of the History of Medicine xxiv (1969): 311.
56. J. L. H. Down "Lettsomian Lecture II On Some of the Mental Affections of Childhood and Youth", British Medical Journal i (1887): 149.
57. Ibid. p.149.
58. Ibid. p.150.
59. Ibid. p.150.
60. J. L. H. Down op. cit. note 45 p.207 Down wrote: "Consanguinity has doubtless the power of aggravating any morbid tendencies, as I believe it has of perfecting any good qualities." (This was not the view of Mitchell, who reasoned that the pronouncement of any personality trait could be undesirable).
61. Ibid. p.191.
62. Ibid. p.193.
63. J. L. H. Down op. cit. note 3.
64. J. L. H. Down op. cit. note 1 p.391.
65. Noted by Jane Oppenheimer "Teratology and Experimental Embryology", Bull. of the Hist. Med. 42 (1968): 148.
66. J. L. H. Down op. cit. note 9 p.11.
67. J. L. H. Down Annual report Earlswood Asylum, 1864. Archives Royal Earlswood Asylum.
68. R. H. Shryock The Development of Modern Medicine (Wisconsin: University of Wisconsin Press 1979) p.313.
69. "Mr. Wells on Cretinism", Edinburgh Medical and

Surgical Journal 53 (1845): 523.

70. J. L. H. Down op. cit. note 9 p.8.

71. Ibid. p.12.

72. Ibid. p.22.

73. Ibid. p.14.

74. Ibid. p.16

75. Séguin was actually a Saint-Simoneon.

76. J. L. H. Down Annual Report Earlswood Asylum, 1859 Archives Royal Earlswood Asylum.

77. First Annual Report Park House, 1849 Archives Royal Earlswood Asylum.

78. J. L. H. Down op. cit. note 76.

79. "Introduction" in The History of Mental Retardation Vol.1 edited by M. Rosen, G. Clark, M. Kivitz (Baltimore: University Park Press, 1976) p.xix.

80. J. Hunt "On the Mental and Physical Characters of the Negro", Anth. Rev. 1 (1863): 387.

81. Ibid.

82. See Anthropological Review vi (1869): 395. For a discussion of the differences between the Ethnological and Anthropological societies see G. W. Stocking "What's in a name? The origins of the Royal Anthropological Institute (1837-71)" Man 6 (1971): 369-390.

83. J. Bachmann Charleston Medical Journal ix (1854): 657-658.

84. R. Knox "On the Application of the Anatomical Method in the Discrimination of Species", Anth. Review 1 (1863): 267. For an account of Knox's racism see M.D. Biddiss "The Politics of Anatomy: Dr. Robert Knox and Victorian Racism" Proc. Roy. Soc. Med. 69 (1976): 245-250.

85. John Conolly op. cit. note 21 p.275.

86. Ibid. p.277.

87. Op. cit. note 77.

88. Second Annual Report Park House, 1850 Archives Earlswood Asylum.



89. Third Annual Report Park House, 1851 Archives  
Earlswood Asylum.

90. Ibid.

91. Op. cit. note 77.

92. This belief was quite common in anthropology at this time. For example, Nott wrote: "The intellectual man is inseparable from the physical man; and the nature of one cannot be altered without a corresponding change in the other" (1845). This is briefly discussed by H..Odom in "Generalizations on Race in Nineteenth Century Physical Anthropology", Isis 58 (1969): 9.

93. J. L. H. Down op. cit. note 9 p.12.

94. E. Séguin op. cit. note 18 p.442.

95. J. L. H. Down op. cit. note 1 p.391.

96. J. L. H. Down op. cit. note 3.

97. C. A. Birch "Down's syndrome. John Langdon Haydon  
Langdon-Down 1828-1896" Practitioner 210 (1973):172.

## CHAPTER FOUR

### A PLACE FOR THE KALMUC IN SOCIETY

In Chapter Two I showed that Sir Arthur Mitchell appears to have identified Down's syndrome as a particular variety of 'idiocy' (at the same time as John Langdon Down) through his investigations of the 'insane' in private care in Scotland. I shall now attempt a more detailed consideration of his work in order to examine a number of problems relevant to this thesis on the historical inter-relationship between the study and treatment of people with Down's syndrome. These problems include the consequences of studying 'idiots' in society as opposed to the artificial environment of an 'idiot' asylum, and a consideration of whether the 'idiots' needs and the interests of society were viewed as compatible or conflicting. In addition, another question naturally arises from Mitchell's studies: what were the similarities and differences between the Scottish and English attitudes and approaches to 'idiocy' and its treatment?

I shall focus on these problems by specifically examining the assumptions underlying Mitchell's concept of Down's syndrome, and by considering how these shaped his beliefs about how 'idiots' should be treated.

The extent to which Mitchell's concept of people with Down's syndrome influenced their institutional treatment will be discussed in Chapter Five.

Mitchell's concept of Down's syndrome and the associated implications for the treatment of people with Down's syndrome

The most obvious question which arises in the consideration of Mitchell's concept of Down's syndrome is whether when he termed people with Down's syndrome<sup>1</sup> 'Kalmuc idiots' in 1876<sup>1</sup>, he was reasoning in exactly the same way as John Langdon Down had done some ten years earlier. Certainly Mitchell, like Down, was fully conversant with contemporary anthropological theories being Secretary to the Society of Antiquaries of Scotland, and having a particular interest in research into the condition of pre-historic man<sup>2</sup> and the deductions which could be drawn from such studies. Therefore, although he did not actually state his views on the anthropological meaning of 'Kalmuc idiocy', his theory of human evolution in general<sup>3</sup> combined with the factors which he considered might be associated with abnormal development, do provide a considerable amount of information on the similarities and differences between his and Down's perception of the condition.

A significant difference between Mitchell's and Down's works, was Mitchell's consideration of the Darwin-Wallace paradigm of evolution and his acceptance, in part, of Wallace's, as opposed to Darwin's theory of the origin of human races. Mitchell was familiar with Wallace's 1864 paper<sup>4</sup> on this subject in which he had placed man in a very special and unique position in the

animal kingdom. The basis for Wallace's distinction between man and other animals was his accordance of man with "that subtle force we term mind,"<sup>5</sup> which he believed was associated with the coming into active operation of "social and sympathetic feelings"<sup>6</sup> and the development of "intellectual and moral faculties."<sup>7</sup> These faculties, Wallace reasoned, prevented natural selection from acting on the physical characteristics of man, and he wrote of this relationship:

He [man] is social and sympathetic. In the rudest tribes the sick are assisted at least with food; less robust health and vigour than the average does not entail death. Neither does the want of perfect limbs or other organs produce the same effects as among animals. Some division of labour takes place; the swiftest hunt, the less active fish or gather fruits; food is to some extent exchanged or divided. The action of natural selection is therefore checked; the weaker, the dwarfish, those of less piercing eyesight do not suffer the extreme penalty which falls upon animals so defective.<sup>8</sup>

He also speculated, however, that man's mental and moral development might continue until the earth was converted "into as bright a paradise as ever haunted the dreams of seer or poet."<sup>9</sup>

In this 'heaven on earth', he predicted:

Each one will then work out his own happiness in relation to that of his fellows; perfect freedom of action will be maintained since the well balanced moral faculties will never permit any one to transgress on the equal freedom of others; restrictive laws will not be wanted, for each man will be guided by the best of laws; a thorough appreciation of the rights, and a perfect sympathy with the feelings of all about him; compulsory government will have died away as unnecessary (for every man will know how to govern himself) and will be replaced by voluntary associations for all beneficial public purposes, the passions and animal propensities will be restrained within those limits which most conduce to happiness.<sup>10</sup>

Wallace's theory incorporating 'mind', 'morality' and the 'kingdom to come' on earth could, with modifications, be reconciled with certain aspects of Christianity, and this probably explains Mitchell's partial acceptance of it. In fact, Wallace, himself, was to make a predictable logical extension to his own studies; the examination of the possibility that man possessed a soul or spirit, which he subsequently investigated by attending some seances at the home of a friend.<sup>11</sup>

Where Mitchell broke with Wallace was over Wallace's proposition that a 'proto-human' may have existed, who did not possess "any sense of right or feelings of sympathy."<sup>12</sup> Mitchell argued that there was no real evidence that this 'progenitor of man' had ever existed; the most ancient of man (as judged by fossil finds) did not seem to have been inferior either physically or intellectually to the latest and most civilized.<sup>13</sup> Such conclusions were compatible with the creation of man as described in Genesis; with a white, as opposed to a black Adam and Eve, and therefore with 'primitive' race formation by a process of degeneration. The likelihood that these were Mitchell's views means that when he called people with Down's syndrome 'Kalmuc idiots', he believed that they and the Kalmuc race were degenerates. In this respect, therefore, his concept of Down's syndrome appears to have been the same as John

Langdon Down's.

In addition, the causes which Mitchell implied were associated with Down's syndrome indicate that he, too, regarded the 'Kalmuc idiot' as representing a state of incomplete development. However, these causes in his paper on 'Kalmuc idiocy'<sup>14</sup> were presented in a series of propositions, which consisted of his own direct observations, and were worked out in the same style that Professor Sir James Young Simpson (famous for being the first man to use anaesthesia in childbirth) used in demonstrating his facts in his obstetric papers (Mitchell had frequently been present at meetings of the Obstetrical Society of Edinburgh in the 1860s when Simpson presented these papers).<sup>15</sup> No conclusions were drawn from these propositions in this particular paper. On other occasions, however, Mitchell had discussed in detail what he considered to be the consequences of various of the pre-natal circumstances he noted had been associated with Down's syndrome. For example, he made the following observations about the occurrence of 'Kalmuc idiocy' and twinning:

In [one case of 'Kalmuc idiocy'] the mother of the idiot had twins, and so had its father's mother. In another, the idiot was one of twins. In another the father's mother had twins. In another the mother of the idiot had twins, and the maternal aunt of the idiot had twins four times running. In another, the mother of the idiot had twins.<sup>16</sup>

Twinning had traditionally been believed to affect development because of the gender abnormalities agriculturists had observed in female cows born co-twin

with males. This had resulted in considerable prejudice against women, who had a male twin, and had led Professor Simpson, himself, to examine whether these<sup>17</sup> women really were sterile as was popularly believed.

However, the main reason that Mitchell made enquiries about whether there were twins in the family of the 'Kalmuc idiot' appears to have been his belief that "in families where they occur with frequency they are often associated with illustrations of a manifest<sup>18</sup> deficiency in reproductive powers." And a deficiency<sup>19</sup> in "reproductive energy" would, in his eyes, be the cause of pre-natal development not reaching the final Caucasian stage. This theory was most probably derived from Robert Chambers' work (see chapter two, page 48).

Virtually all the causative factors which Mitchell listed as associated with Down's syndrome shared the common feature that they bore some relationship to the theoretical concept of low reproductive energy. These factors included advanced parental age (however, only one instance of very advanced paternal age was noted); late birth order of the 'Kalmuc idiot'; the mother being in a marked state of bad health during pregnancy; premature birth and miscarriages in the mothers' reproductive history. This last factor, Mitchell believed, increased the risk of 'idiot' offspring<sup>20</sup> because of its effect on the vigour of the uterus. He also observed that 'Kalmuc' babies were notably "small

and weak at birth",<sup>21</sup> again possibly suggesting that development had not been properly completed.

There was, however, another element to Mitchell's concept of Down's syndrome; he believed that 'Kalmuc<sup>22</sup> idiots' might be 'cretinoid idiots'. At this time, this term appears to have been used to include various forms of 'idiocy' which were not differentiated in any way other than that they showed some resemblances to 'cretins' of which there had been a number of detailed<sup>23</sup> descriptions. Mitchell stated that he recognized "certain points of alliance between the mental and<sup>24</sup> physical states" of the two conditions, and these probably included the stunted growth; lack of, or delayed speech; the large tongue and open mouth; the uneven teeth; and poorly developed nose. It was not problematic for him that people with Down's syndrome did not have goitres, as he was of the opinion that "goitrous persons are not necessarily cretins or cretinoid; and cretins or the cretinoid are not<sup>25</sup> necessarily goitrous." These deductions were probably derived from the investigations of Thomas Blizzard Curling (1811-1888), surgeon to the London Hospital, and Charles Hilton Fagge (1838-1883), a physician at Guy's Hospital.

In 1850, Curling had reported on "two cases of absence of the thyroid body and symmetrical swellings of the fat tissue at the sides of the neck, connected with<sup>26</sup> defective cerebral development." One of Curling's



patients was ten years old, the other six months old. Necropsies of these cases showed absence of the thyroid. Curling concluded:

Pathologists have been recently inclined to view the coincidence of these two conditions (the defective condition of the brain and the hypertrophy of the thyroid) as accidental, or as having no direct relation. In the foregoing cases we have examples of a directly opposite condition viz. a defective brain, or cretinism, combined with an entire absence of the thyroid, which may be regarded as tending to confirm the more modern opinion respecting the connection between cretinism and bronchocoele.<sup>27</sup>

Curling's observations had been developed in 1871 by Charles Fagge who stated the principle that goitre was associated with endemic cretinism, while the thyroid gland was absent or atrophied in sporadic cretinism.<sup>28</sup>

As Mitchell was aware that cretinism could occur sporadically ("cretinism is a form of idiocy, which affects goitrous districts, but which may present itself anywhere"),<sup>29</sup> the fact that 'Kalmuc idiots' occurred in 'non-goitrous' areas did not exclude them from being classed as 'cretinoid' either.

Mitchell did not suggest any specific medical/dietary treatment or physical treatment for 'Kalmuc idiots' based on his concept of the syndrome. However, this does not mean that his views on the treatment appropriate for them was not based on his concept of 'idiocy'; the 'idiots', whom he studied and reported on, were generally in their own homes and therefore, it was the social aspect of his perception of 'idiocy' which was most relevant to his work. This was

derived from his views of human society as a whole, the most pertinent part of which, for this discussion, was his definition of civilization. Like the evolutionist, Herbert Spencer, Mitchell compared the roles of different individuals to the various parts of the body, but that is where the similarity between the ideas of these two men ends. Mitchell wrote:

Man individually is an organism- a bundle of organs- each organ useful, and together forming a complete whole. In like manner a human association is an organism- the different members forming the bundle of organs- each having a separate and useful function, and together forming a complete and powerful whole. Just as the individual man has eyes, ears, hands, legs, etc. so a human association has organs to make war or hunt, to fabricate weapons, to cultivate the soil, to herd the flocks - soldiers, farmers, carpenters, blacksmiths, housebuilders, hatters etc., all the way down to the makers of pin-heads and pin-points. In this way the variously-constituted find places of usefulness. The association, indeed, cultivates actively different qualifications in its different members, and it develops them into such organs as are needed to give vigour to the organism as a whole. Individually, no doubt, each man is thus rendered more powerless than he naturally is to the struggle for existence but the association gains in strength...

When the cripple who can see mounts the strong back of his brother who is blind, they make together a man who can see and walk, and so they can both accomplish the journey which to each separately is impossible. In this little society we can see that happening in a small and simple way, which presents itself, with much complication in large associations of men.<sup>31</sup>

Such a conception of society was also not incompatible with that portrayed in the Bible and is actually very similar to 1 Corinthians 12.

By individuals forming such associations, Mitchell considered that man escaped the law of natural selection. Man, he believed, had co-operated and created

societies characterised by the division of human labour as a result of the mental power with which he had been endowed since his origin, and therefore the 'unfit' as well as the 'fit' had been enabled to survive. Human civilisations could not be viewed as synonymous to intra-specific associations between animals such as bees, ants and beavers, because, unlike men, such animals did not exercise free-will in forming their communities; the division of labour in animal societies was not a "voluntary undertaking". Mitchell's ideas were in direct opposition to the contemporary Social Darwinists who argued that the struggle for existence among human beings could be expected to yield social progress. For example, Herbert Spencer, who envisaged that his general evolutionary principle could be applied to society, believed that welfare programmes were of illusory value; man, he believed, should be encouraged to participate in a keener struggle for existence which would culminate in the elimination of the socially unfit.<sup>32</sup> Mitchell, on the other hand, believed that civilisations could be judged by the extent to which natural selection had been defeated, and the therefore<sup>33</sup> also by the treatment and the survival of the 'unfit'.

How then did Mitchell's work reflect his interpretation of the nature of civilisation?

Firstly, he considered that the mentally and physically weak, who, of course, included 'Kalmuc

idiots', were to be regarded as essential members of society, who should receive greater care and attention than people with a 'strong constitution'. And as Mitchell was one of those rare people, who do translate their beliefs into useful actions, his motives for taking up the job of Deputy Commissioner in Lunacy responsible for investigating the condition of the 'insane' in private care are not too difficult to understand. Scottish 'lunatics' had been found to have been receiving little care, and there were many instances of their abuse: physical, mental and sexual by their relatives or guardians in their own homes.

A few case descriptions can, perhaps, best illustrate the conditions which were sometimes encountered. The first refers to an 'idiot woman':

By no description can I convey an idea of the misery, filth, and degradation in which I found her. With the dog she sleeps in the ashes at the fire-side, without even the pretence of a bed. I found her half-naked, her breasts exposed, and on her shoulders nothing but a bit of sacking, shawl-ways. The house was ruinous, furnitureless, bare, wet, cold, dark, stinking and filthy.<sup>34</sup>

The following account is of two brothers:

They are both congenital idiots; are unable to speak; can see and hear; are active, restless, and destructive; can neither feed themselves nor put on their clothes; are apt to wander; are troublesome, and need constant watching; are not of cleanly habits, and are wholly ineducable and unproductive.

I found one of them in bed, and very ill. Two or three days before my visit, his clothes (which were cotton) had taken fire, and before it could be extinguished his legs and body were severely burned. The clothes of his brother also gave proof of having been on fire. In no respect were these patients found in a satisfactory state. Their persons and clothing were dirty in the extreme. They are often left alone in the

house. The chief objection, however, which I have to their present condition, springs from the opinion I formed of their guardians. Though they are their parents, they appeared totally devoid of parental affection, expressing over and over again their wish to get quit of their charge.<sup>35</sup>

The next is of an eighteen year old 'idiot' boy:

From childhood...he has gone about the house and doors in a state of absolute nakedness, and all that he possesses at present in the shape of clothing is one short cotton shirt.<sup>36</sup>

Mitchell helped see to it that where possible such patients who had been neglected or harshly treated were placed under new, trustworthy guardians, or if these could not be found that they were removed to asylums. However, if the patient's family were not paupers the Lunacy Board had no real power to improve his conditions unless a crime against him had been committed and reported.

In milder cases of bad management, Mitchell arranged for the home to be cleaned and for sufficient clothing and bedding to be supplied to the 'idiot'.<sup>37</sup> Part of his success in securing the support of local authorities has been attributed to his personality; a very charming and courteous man who knew exactly how to present his case.<sup>38</sup>

Not everyone, however, considered that Mitchell's work attending to the needs of 'lunatics' in society was necessary. Lord Kinnaird,<sup>39</sup> for example, corresponded in 1870 with the Earl of Camperdown (the letter was published in The Scotsman) over the undesirability of the permanence of the Scotch Lunacy Board and the role

of the Deputy Commissioner, of which, of course, Mitchell was one. Kinnaird had attempted to prevent anyone filling these particular posts, as he considered the creation of jobs which consisted of "ordering a pair of shoes here and undergarments there for some few pauper lunatics"<sup>40</sup> a complete waste of money. His failure to prevent their being filled, he suggested, was because "situations must be found for poor relations."<sup>41</sup>

Mitchell was outraged by this evaluation of his work and felt the need to answer what he considered to be "unfounded and injurious charges"<sup>42</sup> against him by writing to the Lord Justice Clerk. He asserted in his letter that he was the "poor relation of no man"<sup>43</sup> and that "Lord Kinnaird had done him a wrong in making a statement so offensive and so entirely without foundation...neither kinship, nor political creed, nor any other creed...had influenced any of the appointments."<sup>44</sup>

Mitchell also answered the accusation that he was doing little of importance:

In the most literal sense I have devoted my whole time to the discharge of my duties, and have done everything in my power to render the condition of the insane poor in Scotland satisfactory. I am proud of the public position I have occupied, and of the humane work in which I have been engaged. I have never treated lightly the important trust reposed on me, but, on the contrary, have felt its responsibilities.

The condition of the insane in Scotland thirteen years ago was a disgrace to civilization. If we - that is, the Board and its officers - have no other reward for our work, we have it at least in the great change for the better which has taken place, and which everywhere is seen and acknowledged.

No part of the work of the Scotch Board has tended more to ameliorate the condition of the insane, and to remove what was the disgrace of the country, than that which relates to those of them who are not in establishments. The allusion to it, however, in Lord Kinnaird's letter, gives no correct indication of its nature, and tends only to mislead. But even if it were correct, it would surely be wrong to speak lightly as he does of the benefit of supplying clothes to a lunatic whose clothing is insufficient. If Lord Kinnaird will himself try what is meant by insufficient clothing, and will shiver through a January in rags, I shall feel quite satisfied that he will indorse the opinions...as to the great importance of comfortable and warm clothing to the insane, who are generally of feeble vitality, and less able than the sane are to resist the depressing influences of cold. It is not, however, the bodily health only, but the mental state also, of the insane which is affected by clothing.<sup>45</sup>

Mitchell's conception of civilisation also led him to a second conclusion about the treatment of 'idiots'; where possible, he considered, they should remain in the community and not be placed in institutions.<sup>46</sup> In society, they had their own particular and useful part to play, and it was there that they should receive their special attention. If they were being neglected in their homes, they had, as we have seen, been sent to an asylum as a last resort. Mitchell, however, regarded this form of institution as only really suitable for cases which might be quickly cured there.<sup>47</sup>

However, the view that it was undesirable to institutionalise the 'idiot' was not shared by every physician in Scotland; there were those who believed that all 'idiots' should be placed in an asylum, not to improve and educate them (the aim of the founders of Park House and Earlswood Asylum), but in order to protect society from them.

The notion that the 'idiot' was inevitably a dangerous criminal 'type' was a consequence of the deterministic belief that moral development and 'goodness' of behaviour were directly related, and also that moral judgement (like other forms of judgement) was at its lowest in the 'primitive degenerate' and at its most developed in the 'civilized' European. Apparent scientific evidence for these associations and relationships had been found by, among others, the contemporary Scottish surgeon, Dr. Bruce Thompson of the Perth Prison, who carried out a number of post-mortem investigations on the prisoners who had died there, and had discovered that in every one of them almost all their organs were diseased; and by William Guy, the Medical Superintendent of Millbank Prison, who had conducted a survey of the relationship between the prisoners' bodily and mental conditions and their crimes.<sup>48</sup>

Such reasoning and 'evidence' was not compatible with the existence of 'free-will'; this required that a highly intelligent individual, for example, could choose to behave either selflessly or totally selfishly, and was not therefore necessarily a 'good' person simply because he was of a 'good' constitution (indeed, he could be viewed as more 'guilty' than the 'idiot' if he chose to 'sin', because he had a better understanding of a situation). Mitchell, as has been already discussed,



firmly supported the notion of the existence of free-will, and stated that he, himself, was as likely to commit crimes or become dangerous as the 'idiot'. His arguments and experience of 'idiots' like people with Down's syndrome in private care did, in fact, prove to be of crucial importance in weakening the contemporary case for the life detention of 'idiots' in Britain, a proposal which was discussed at a Departmental Committee<sup>49</sup> in 1881.

The only type of accommodation other than their own home which Mitchell considered suitable for adult 'idiots' was a 'specially licenced house'<sup>50</sup> where a maximum of four 'idiots' (in only 3.4% of these houses were there more than one 'idiot') were grouped together under the supervision of a guardian (75.5% of these guardians were relatives of the 'idiot'), and regularly visited by officers from the Scotch Lunacy Board. However, only twenty-one of these had been set up (after the amendment of the Lunacy Act) in the middle of the eighteen sixties and they were regarded as very much of an experiment.<sup>51</sup>

I shall quote Mitchell's description of life in these licensed houses, because it illustrates so well all the elements of the care he believed that 'idiots' should receive:

Almost without exception the patients thus disposed of are found to be happy and contented, and to exhibit an improvement in their physical health. They are treated as members of the family, occupy the same sitting room, and eat at the same table. They are

clothed as the villagers generally are, and most of them go regularly to church. They send and receive letters, and are visited by their friends, and occasionally by the clergyman of the locality. They have tea parties and picnics. Their occupations are varied, and usually such as they have been accustomed to. Some are chiefly employed in ordinary household work, and others in knitting and sewing. One acts as a nurse to her fellow patient, who is old and infirm. Some of the men do field work and look after cattle, and one was met returning from a neighbouring village to which he had been sent with butter and eggs. In short their time is spent in occupations of a quiet and commonplace character, which are not, however, the less useful or proper on that account. Care has been taken to secure comfortable sleeping accommodation and each patient has been provided with a separate bed. As a rule, the best room in the house has been made the sleeping-room, and it is generally snugly and fully furnished. In one or two cases, indeed, the bedroom is quite equal, as regards comfort, to what is furnished to better-class asylum patients. The guardians are persons reputedly of good character, and from without any such employment as would take them from home. The common remuneration is 5s. per week, body-clothing not included.<sup>52</sup>

The individuals' happy and useful lives, interacting with other members of their own social sphere was, of course, compatible with Mitchell's theories of civilisation. In these licensed houses a situation was created, too, which would enable 'weak' members of society to act together in order to overcome  
<sup>53</sup>  
each others' defects. All would then be playing an essential 'giving' role in the home. In addition, they would also be members of a family, and it was the 'family unit' which Mitchell believed was, and should  
<sup>54</sup>  
remain, the natural unit of civilized associations.

Much greater freedom could also be given to the 'idiot' in an ordinary home situation than in an asylum; many people, he considered, did not require the discipline of an asylum regime, and the care which could

be provided for ex-asylum patients in private dwellings could be seen as "an extension of that non-restraint which is the boast of this land and the glory of Conolly."<sup>55</sup> Such a statement could have easily come from someone writing in the nineteen eighties.

However, he did caution that certain 'imbeciles', who exhibited what he described as "very strongly marked eroticism"<sup>56</sup> might need to be removed to an asylum. Pregnancy was not at all uncommon amongst 'imbecile women'; Mitchell recorded that thirty four out of one hundred and ninety four of these women (in Aberdeen, Ross, Shetland and Wigton) had given birth to an illegitimate child or children<sup>57</sup> and he stated:

The feeling of disgust which the unhappy condition of idiotic and imbecile women usually inspires does not appear to give them that protection which one would expect. Thus we read of a "squinting, hideous, dirty drunken imbecile, who has borne three illegitimate children, all idiots, to different fathers. One of them, still lower in the intellectual scale than his parent, is in the poorhouse; another was burned to death; the fate of the third could not be ascertained."<sup>58</sup>

He also believed, though, that most 'imbecile women' were victims rather than seductresses, and that they only needed the supervision of a guardian to prevent "advantage being taken by unprincipled men."<sup>59</sup>

His study, in some detail, of the reproductive potential and sex drive of 'Kalmuc idiots' was obviously undertaken with the aim of investigating the likelihood of unwanted pregnancies occurring if they remained, or were placed, in private care. He wrote on the subject:

It not unfrequently happens that in the male adult Kalmuc idiot one testicle only descends. I have recorded this in five cases. In one boy, ten years old, neither testicle had come down. The hair on the pubes, in axillae is generally scanty.

Puberty is reached late and the menstrual discharge soon ceases in the females, who never show active eroticism. My observations point clearly to this conclusion as correct. I have not known any case of a Kalmuc idiot woman having a child. As in the males, so in the females also, the hair on the pubes and in the axillae is scanty. At the time of the establishment of the menstrual discharge, however plumpness appears, and the mammae are fully developed.<sup>60</sup>

These observations, of course, suggested that home care with a guardian was suitable for people with Down's syndrome.

Clearly, as was the case with John Langdon Down, part of Mitchell's specific study of 'Kalmuc idiots' was related to their treatment needs; while Down had focused on the characteristics important for their education, Mitchell turned to the aspect of Down's syndrome which could determine whether they were suitable 'types' for treatment in the community.

In Mitchell's eyes, another important benefit of the licensed house over the asylum was the cost; obviously, it was a much cheaper arrangement. He stated that this was therefore not only "the best thing for these patients", but also "the best thing for the country."<sup>61</sup> Or in terms of his beliefs, the whole association was benefiting by 'the weak' assuming their proper places and roles in society. This last economic argument was likely to be the only one which would convince people like Lord Kinnaird that the Scotch

Lunacy Board should permanently exist.

Mitchell's views, however, on the appropriateness of private care for 'idiots' came under attack from yet another quarter, the Medico-Psychological Association.<sup>62</sup>

The basis of the attack was the fact that in Scotland about twice the percentage of all pauper lunatics as in England were kept in private homes.<sup>63</sup> (However, in England 'Licensed Houses' did not exist,<sup>64</sup> and the condition of single patients was not known as the boards of guardians and their officers did not have the same direct and immediate control which the Scotch Board of Lunacy had.<sup>65</sup> )

The President of the Medico-Psychological Association, Dr. Robertson, expounded the argument that 'idiots' frequently required the care that only an asylum could offer. He wrote:

I would just ask you to recall the demented and fatuous inmates of one of our county asylums, with their depraved habits and many wants, and to remember the daily, hourly care required to keep them decently clean, and to retain some faint image of humanity and civilisation about them, in order to realize what their condition must be when all the costly remedial agents of the asylum are once withdrawn.<sup>66</sup>

Robertson also questioned the level of supervision which the 'pauper lunatics' received from the Scotch Lunacy Board,<sup>67</sup> and the motives of the unrelated guardians, whom he called ignorant and needy.<sup>68</sup>

Mitchell answered all these criticisms: he pointed out that there were many degrees and forms of 'idiocy', some of which gave great difficulty and others little

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difficulty in management. Over the question of supervision, he pointed out that single patients in England were only under the care of boards of guardians and their officers, while in Scotland the law had placed the whole body of the insane poor under the care of the State, so that the Scottish single patients were under the control of the Board of Lunacy, who had considerable powers in respect of them.<sup>70</sup> In answer to the criticism of the guardians, who were not relatives of the patients, he argued that they were no more 'ignorant and needy' than the attendants in asylums.<sup>71</sup>

There was, in fact, yet another consequence of Mitchell's interpretation of the nature of civilisation for his beliefs about the appropriate treatment for 'idiots'; the proposition that each man, or, within Mitchell's conception of society, each family, had a place and a corresponding function within the human association led him to the conclusion that they should be helped to maintain the position that they had been born into. Thus, members of the middle classes with a dependant 'idiot' relative should be given financial relief to prevent the family becoming pauperized;<sup>72</sup> special asylums should also be built, he considered, so that the "brothers, sisters, sons and daughters of doctors and clergymen and lawyers, and schoolmasters and people of such classes may find care and treatment, apart from ordinary pauper lunatics, but at moderate rates."<sup>73</sup>

Of course, Mitchell was far from alone in his beliefs about the legitimacy of the existing social structure; he was, in this respect, a quite typical representative of the Victorian middle classes, whose social values, as Tholfsen for example has discussed, presupposed middle class pre-eminence and working class subordination.<sup>74</sup>

There was, in addition, another aspect of Mitchell's concept of 'Kalmuc idiots' which appears to have had consequences for their treatment at the time. This was his perception of them as a specific type of human being. Not only did he believe that all people of this type possessed "a characteristic state of mind and a characteristic condition of the body,"<sup>75</sup> he also considered that they "would be found to resemble each other in character, in likings and dislikings, in habits, in defects, in aptitudes, & c."<sup>76</sup>

The clear implication of this was that the careful study of just one 'Kalmuc idiot' would reveal the characteristics and aptitudes of all 'Kalmuc idiots'. And it was this deduction, which led the physician, John Fraser, of the Fife and Kinross insane asylum to observe closely Elizabeth Meldrum, a forty year old woman with Down's syndrome, who had been pointed out to him by Mitchell when he had visited the asylum as a Commissioner in Lunacy in 1875<sup>77</sup> (a position he had held since 1870)<sup>78</sup> to advise on the care of the people in the

asylum. Although Mitchell had a good set of notes on the syndrome at this time, he had not had the opportunity to observe a single 'Kalmuc idiot' for a long period of time.

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Fraser subsequently reported on the physical and mental characteristics of Elizabeth Meldrum, as well as the post-mortem examination, which was conducted on her death, just six weeks after her admission to the asylum (following the death of her mother). It was his description of her mental condition, which appears to have been the part of his study which had consequences for the subsequent treatment of people with Down's syndrome, and I shall therefore quote it:

Her intellect may be said to have been that of a child from a year to eighteen months old. She could not speak, but she uttered sounds with volubility as if she were busily speaking, but when in anger she did this with emphasis and vehemence. Her sight and hearing were good. She remembered the faces of those who were kind to her, and of those who annoyed her, and sought notice from the former and avoided the latter. Her chief characteristic was an affectionate disposition. This was evidenced by her kind, contented and happy expression, and by her grasping the hand of anyone who took notice of her, patting it and putting it to her cheek. At times she had the peculiar habit of putting one's hand on the back of her head, and indicating that she wanted it smoothed.

Another characteristic was her love of decoration. Any bright article of dress she wore with jealous care, and drew everyone's attention to it. If any other patient had anything gay on, she always pointed to it.

She is reported as being very fond of music. She continually sat in the corner on a bench next the fire, with her feet under her. She had no sense of modesty, and her habits were dirty. She had a great hatred of water, and her struggles against being bathed were strong and persistent. On admission she was extremely dirty, and I attribute the cause of death, acute pleurisy, to the constant bathing which was rendered necessary by her habits.

The description of her mental state would have



been fuller, had the patient been longer under observation.<sup>80</sup>

There are several aspects of this description which, when combined, suggest that Elizabeth Meldrum may have been suffering from a form of Alzheimer's disease (a pre-senile dementia). Firstly, the extremely low assessment of her intellect coupled with her complete inability to speak (her close relationship with her mother, who is described as having given her "constant and affectionate care" would have been conducive to some speech development) are compatible with a diagnosis of Alzheimer's disease. In this disease, logoclonia (the endless reiteration of single syllables or mutilated particles of words) does also commonly occur. Secondly, one of the most striking characteristics of Alzheimer's disease is the eagerness to maintain emotional rapport with others. Thus, like Elizabeth Meldrum, the Alzheimer patient can appear as 'affectionate'. This could easily lead to the mistaken belief that the patient was happy. In fact, Alzheimer's disease is often associated with serious depression; Elizabeth Meldrum's desire to have the back of her head stroked may have been the result of paraesthesiae in the occipital area of her head, which is a fairly common feature of depression. Emaciation and<sup>81</sup> incontinence are also signs of Alzheimer's disease.

The occurrence of premature ageing is now recognized to have a high incidence in Down's syndrome; histological changes, indistinguishable from those in

Alzheimer's presenile dementia, have been frequently found in individuals with Down's syndrome from the age of about thirty five.<sup>82</sup>

Therefore, it was rather unfortunate that Elizabeth Meldrum was chosen as the 'Kalmuc idiot' to study because of the consequent, possible underestimation of the educational potential of younger people with Down's syndrome. (The actual influence of Fraser's description of E.M's mental state will be assessed in the following chapter.)

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On account of his distinguished public services, Mitchell received from Queen Victoria the Order of Companion of Bath in 1886, and was made a Knight Commander in 1887.<sup>83</sup>

In 1889, he became Chairman of a Commission to enquire into Lunacy Administration in Ireland. He suggested that the Irish follow Scotland's administrative model. His proposal was considered but it was argued that Scotland's system could not be adapted to suit Irish needs because of difficulty in finding clean homes, the temptation of profiteering, threats to property values, public outcry against abuses, outrages committed by or against patients; all of which was thought to be more problematic in Ireland. In brief, the Irish, unlike the Scottish people would disregard and fail to comply with the law.<sup>84</sup>

Between 1890 and 1897, Mitchell was a member of the

Universities (Scotland) Commission and in addition, played a prominent part in a number of societies; as well his distinguished role in the Society of Antiquaries of Scotland, he was Honorary Secretary and afterwards Vice-President of the Scottish Meteorological Society; President of the Early Scottish Text Society; Member of the Council of the Scottish History Society, and Professor of Ancient History to the Royal Scottish Academy. His works include A List of Travels in Scotland,<sup>85</sup> 1296-1900 and Dreaming, Laughing and Blushing.

#### CHAPTER FOUR: NOTES

1. John Fraser and Arthur Mitchell "Kalmuc Idiocy: Report of a Case with Autopsy With Notes on Sixty-two Cases", J. of Ment. Sci. xxii (1876): 169-179.
2. "Obituary of Sir Arthur Mitchell" British Medical Journal i (1909) pp.1261-2.
3. Stated in The Past in the Present: What is Civilization? - a compilation of the Rhind lectures in archaeology delivered by A. Mitchell (1876-78) (Edinburgh: D. Douglas, 1880) pp.163-179.
4. A. R. Wallace "The Origin of Human Races and the Antiquity of Man deduced from the Theory of Natural Selection", Anth. Review 2 (1864): clviii-clxx.
5. Ibid. p.clxvii.
6. Ibid. p.clxiii.
7. Ibid.
8. Ibid. p.clxii. For an account of Wallace's concept of variation see P. J. Bowler "Alfred Russel Wallace's Concepts of Variation" Journ. Hist. Med. xxxi (1976): 17-29. For an account of Darwin's views see P. J. Bowler "Darwin's concepts of Variation" Journ. Hist. Med. xxix (1974): 196-212.
9. Ibid. "The Origin Of Human Races" p.clxx.
10. Ibid. p.clxix.
11. For discussions of Wallace's interest in spiritualism see M. Kottler "Alfred Russel Wallace, The Origin of Man and Spiritualism" Isis 65 (1974): 145-192; R. Smith "Alfred Russel Wallace: Philosophy of Nature and Man" Brit. Journ. Hist. Sci. 6 (1972): 177-199.
12. A. R. Wallace op. cit. note 4 p.clxv.
13. A. Mitchell op. cit. note 3 p.178.
14. J. Fraser and A. Mitchell op. cit. note 1 pp.174-179.
15. For example "Session XXII Meeting III Proceedings of the Edinburgh Obstetrical Society" Edinburgh Medical Journal iii (1863): 1142-1145.
16. J. Fraser and A. Mitchell op. cit. note 1 p.179.

17. Discussed in more detail by C. J. Moir in "Are Females Born Co-Twin with Males Sterile?" British Medical Journal i (1949): 597-600.

18. A. Mitchell (1862) "Plural Births in Connection with Idiocy", J. of Ment. Sci. VIII (1862): 597-600.

19. Ibid. p.599.

20. Op. cit. note 15 p.1143.

21. J. Fraser and A. Mitchell op. cit. note 1 p.175.

22. Ibid. p.177.

23. The use of the term 'cretin' seems to date back to Felix Plater's writing in 1614. He probably derived the word from the Latin creta which means chalk, an allusion to the greyish white, pasty colour of the skin characteristic of the condition. Another theory is that the word is a form of the French 'chrétien' meaning a Christian, considering the 'cretin' to be blessed because of his child-like innocence and inability to distinguish between right and wrong because of his limited understanding.

For a discussion of the history of cretinism see Clemens Benda Mongolism and Cretinism (London: William Heinemann, 1947) pp. 6-13.

24. J. Fraser and A. Mitchell op. cit. note 1 p.177.

25. Ibid.

26. Thos. B. Curling "Two Cases of absence of the thyroid body and symmetrical swellings of fat tissue at the sides of the neck, connected with defective cerebral development" Med Chir. Trans. 33 (1850): 303-306.

27. Ibid.

28. V. C. Medvei A History of Endocrinology (Lancaster: M.T.P. Press Limited., 1982) p.246.

29. J. Fraser and A. Mitchell op. cit. note 1. p.177.

30. A. Mitchell op. cit. note 3.

31. Ibid. pp.169-170.

32. Herbert Spencer's life and work is examined by J. D. Y. Peel Herbert Spencer: The Evolution of a Sociologist (London: Heinemann, 1971). His work is also discussed in "Chapter Fifteen" in David Oldroyd Darwinian Impacts (Milton Keynes: Open University Press, 1980) p. 204. Mitchell's arguments for the existence of 'free-will'

and therefore for the impossibility of applying evolutionary theories to human societies were given in a lecture entitled "Can the Brutes be civilised?" op. cit. note 3 pp.180-183.

33. "Obituary" op. cit. note 2 p.179.

34. A. Mitchell The Insane in Private Dwellings (Edinburgh: Edmonston-Douglas, 1864,) p.13.

35. Ibid. pp.55-56.

36. Ibid. p.48.

37. Ibid. pp.68-70.

38. Op. cit. note 2.

39. Lord Kinnaird "Letter to Earl of Camperdown" Journal of Mental Science XVI (1870): 142.

40. Ibid.

41. Ibid.

42. A. Mitchell "Letter to Lord Justice Clerk." Journal of Mental Science XVI (1870): 143-145.

43. Ibid. p.143.

44. Ibid. p.144.

45. Ibid.

46. A. Mitchell op. cit. note 34 pp.79-88.

47. Ibid. p.87.

48. W. Guy "On Insanity and Crime." Journal of the Statistical Society XXXII (1869): 172.

49. See J. Saunders "Quarantining the Weak-minded: psychiatric definitions of degeneracy and the late Victorian asylum", in The Anatomy of Madness (London: Routledge: 1988) Vol.III eds. W. F. Bynum, R. Porter and M. Shepherd, pp.273-295.

50. A. Mitchell op. cit. note 34 p.92.

51. Ibid. p.93.

52. Ibid. pp.94-5.

53. Cf. his theory of human society op. cit. note 3 pp.169-170.

54. A. Mitchell "Lecture II. What is the Unit of a Civilized Association ?" (1878) pp.190-191 in The Past in The Present: What is Civilization?.

55. A. Mitchell "Care and Treatment of the Insane Poor" Edinburgh Medical Journal XIII (1868): 727.

56. A. Mitchell op. cit. 34 p.51.

57. Ibid. p.52.

58. Ibid. p.53.

59. Ibid. p.51.

60. J. Fraser and A. Mitchell op. cit. note 1 p.176.

61. A. Mitchell op. cit. note 34 p.92.

62. A. Mitchell op. cit. note 55.

63. Ibid. p.721.

64. Ibid. pp.727-8.

65. Ibid. p.727.

66. Ibid. p.721.

67. Ibid. p.723.

68. Ibid. p.729.

69. Ibid. p.721.

70. Ibid. p.728.

71. Ibid. p.729.

72. Ibid. p.725 p.732.

73. Ibid. p.732.

74. Trygve Tholfsen "Middle Class Hegemony: Working Class Sub-culture" (1976) in Essays in Comparative History. Economy, Politics and Society in Britain and America 1850-1920 ed. Clive Emsley, (Milton Keynes: Open University Press, 1984) pp.93-123.

75. J. Fraser and A. Mitchell op. cit. note 1 p.177.

76. Ibid. p.177.

77. Ibid. p.169.

78. Op. cit. note 2.

79. J. Fraser and A. Mitchell op. cit. note 1 pp.169-174.

80. Ibid. p.171.

81. For a detailed discussion of premature ageing in Down's syndrome see Jacek Zaremba "Recent Medical Research" in Current Approaches to Down's Syndrome edited by David Lane and Brian Stratford (London: Holt, Rinehart and Winston, 1985) pp.39-42.

82. Ibid.

83. "Obituary" op. cit. note 2.

84. M. Thompson "The Mad, the Bad and the Sad: Psychiatric Care in the Royal Edinburgh Asylum (Morningside) 1813-1894" (Boston University Ph.D., 1984) p.71.

85. "Obituary" op. cit. note 2.



## CHAPTER FIVE

### MAINTAINING THE STEREOTYPES

In this chapter I shall consider the work of a physician and medical superintendent, Dr. George Edward Shuttleworth (1842-1928), who has been considered by some<sup>1</sup> to be the foremost nineteenth century authority on Down's syndrome. I shall also draw upon the theories of some contemporary British medical superintendents for comparative purposes in order to illuminate certain aspects of his concept and treatment of people with Down's syndrome, and, in particular, to examine the extent to which John Langdon Down's and Arthur Mitchell's theories influenced subsequent ideas about the condition.

Shuttleworth was born at Edgbaston on November 16th, 1842. He went to the City of London School, and on leaving proceeded to King's College, London, where he graduated B.A. with honours in physiology. He subsequently obtained the M.R.C.S. and L.S.A. diplomas, and the M.D. degree of Heidelberg. After working for a time at the Kilburn Dispensary, he was appointed assistant medical officer to the Earlswood Asylum, the superintendent being John Langdon Down.<sup>2</sup>

Shuttleworth thus became one of the few people in the world who was aware of the existence of Down's syndrome in the 1860s.

When the Commissioners in Lunacy visited Earlswood Asylum, they described Shuttleworth as "active and interested in his duties."<sup>3</sup> This interest was soon to be repaid, as shortly afterwards, in 1870, at the age of twenty eight, he obtained the post of Medical Superintendent at another asylum of this type, the Royal Albert Asylum at Lancaster.

An inspection of some of the material<sup>4</sup> from this asylum pertaining to the earliest admissions of people with Down's syndrome shows the extent to which Shuttleworth had been initially influenced by Down's aetiological framework. For example, the most frequent cause which was entered for Down's syndrome between 1870 and 1876 (the period he was Superintendent before Fraser and Mitchell published their paper on 'Kalmuc idiocy') related to the mothers' mental health; of the thirteen cases of Down's syndrome (twenty seven were admitted during this period) for which a cause was given, nine were entered as having resulted from some emotional disturbance in pregnancy (five - fright of mother, two - maternal impression, two - worry of mother). The remaining causes (two - fits, one - premature birth, one - a fall) had also been entered as possible causes of 'idiocy' by Down.

In addition, Shuttleworth also investigated whether the parents of the 'Mongols' were 'phthisical' or intemperate, and if insanity/idiocy were in the family. Birth order and the age of the parents were also

sometimes noted, but, exactly like Down, he did not record any of these possible associated factors as the actual cause of Down's syndrome. In 1881, (by when, he would have had an opportunity to examine Fraser and Mitchell's work - he was a member of the Medico-Psychological Association<sup>5</sup> at the time that their paper was published in this association's journal, the Journal of Mental Science) he published his first paper containing 'his' theory of Down's syndrome. He wrote:

In these cases there is no hereditary mental taint, no consanguinity of parents to be traced, but in almost all it is found that there has been some lowering of the maternal vigour, either through ill health, advancing years or, it may be some depressing emotion during gestation.<sup>6</sup>

As we have seen, Shuttleworth had collected no evidence of physical 'ill health' himself, so this association was clearly derived from Mitchell's or Down's theories. The notion of emotional strain being able to affect a woman's reproductive capacity had been validated at this time by new theories of conservation<sup>7</sup> of energy.

He made no mention of Down's belief that 'phthisis' was of key importance in causing the development of the particular characteristics of the 'Mongol' and this was in spite of the fact that he, like Down, had witnessed the frequent deaths of people with Down's syndrome from this disease. In fact, of the fifteen earliest cases of Down's syndrome, who died at the Royal Albert, ten were recorded as having died from

'phthisis'. However, perhaps he had recognized that as 'Mongols' were not the only people to die of tuberculosis, they were probably not the only 'idiots',<sup>8</sup> who had inherited this particular diathesis. In 1874, for example, seven people had died from this disease and<sup>9</sup> only two of these had Down's syndrome.

Indeed Shuttleworth considered that mixed causes<sup>10</sup> rather than specific causes were operative. This also led him to reject intemperance as a cause capable of bringing about sufficient degeneration in its own right, in a single generation, to produce a child like a<sup>11</sup> 'Mongol'; in only one 'Mongolian idiot' had he<sup>12</sup> observed that the father was occasionally intemperate. Support for this view had also come from his discussions with contemporary medical superintendents (he visited a number of American institutions in 1877), who had begun to doubt the great importance attached to drunkenness. Some of their predecessors for example Dr. James Parrish, the second superintendent of the Pennsylvania Training School for Idiotic and Imbecile children at Elwyn, had gone so far as to state that fifty per cent of the cases in the American institutions could be attributed specifically to intemperance. Dr. Grabham, the current superintendent of Earlswood Asylum had also told him that out of eight hundred cases tabulated by him he could say that only six were probably caused by drunkenness. An inspection of the Edinburgh reprint of

Howe's 1840 report also showed that in ten out of eleven cases in which intemperate parents were noted ten were also described as not in a normal state of health.<sup>13</sup>

He did not reject entirely, however, a link between intemperance and congenital abnormality (a link, which Bynum (1984)<sup>14</sup> has shown in his paper on 'Alcoholism and Degeneration' not only dated from Howe's and Down's enquiries, but which had been established in antiquity, and had received further support for its veracity from a number of physicians in the eighteenth and early nineteenth centuries), but considered that the direct bequest of drunkenness was only likely to be "scrofulous disease, nervous instability and even moral obliquity"; one more step was needed, "the conditions remaining unfavourable to reach actual idiocy."<sup>15</sup>

Shuttleworth did attach importance to raised maternal age as being one of the (mixed) causes, no doubt, because his own data from the Royal Albert did clearly show an association with this factor.<sup>16</sup> In point of fact, however, Shuttleworth had initially recorded information about both parents' ages, not just the mothers', having, at first, accepted Down's proposition that pathological alteration of either parent's constitution (prior to conception) could damage the offspring. There was nothing in his own data themselves to suggest that the occurrence of Down's syndrome was any more strongly associated with advanced maternal age than advanced paternal age; the importance he attached

to the mother's age had obviously stemmed from the other factors which Mitchell had recorded as also having occurred in association with the syndrome for example ill health of the mother while pregnant.

Shuttleworth's study of the characteristics and his treatment of people with Down's syndrome do also appear to have been strongly influenced by John Langdon Down. He, like Down, assumed that the optimal way to organize an 'idiot' asylum was to separate the patients (sixty four males in 1871) into groups and he recorded in the first annual report from the Royal Albert Asylum:

A classification of the cases according to their ages, physical condition and mental capacity has been made; and those whose example might have a prejudicial effect on the progress of others have been placed in a class apart, while the younger and more feeble cases form a separate division under the care of the female nurses.<sup>17</sup>

However, although Down had, no doubt, convinced Shuttleworth that people with Down's syndrome were all of exactly the same mental and physical 'type' there simply was not adequate teaching staff to provide any particular educational treatment for the boys with Down's syndrome; initially there was only one 'scholastic' teacher, the unqualified wife of the chief  
18  
attendant, and one gymnastic master.

The educational aims for all the pupils were the same, too, to develop their latent intelligence and to discipline them in preparation for industrial training, which would, of course, reduce the running costs of the

institution (it was chiefly for this reason that girls including those with Down's syndrome were admitted in 1872;<sup>19</sup> they could be used to make the beds in the institution, as Down had arranged at Earlswood).

Shuttleworth's study of the educability of people with Down's syndrome must, therefore, have been bound up with how amenable they were to discipline and training; clearly, anyone who was relatively easy to 'train' (and probably repress) would have been perceived as a 'hopeful case', and conversely anyone who was capable of objecting in any way to the demands of the regime would not have been judged so favourably in such an institution.

The emphasis on training with the obvious concurrent suppression of personal freedom, self-expression, independence of thought and individuality was bound to have created optimal conditions for the survival of Down's stereotypical image of people with Down's syndrome. And Shuttleworth did write of their abilities in a remarkably similar way to Down:

Idiots of this type are for the most part very imitative, they have a good ear for tune and time, and are capable of a fair degree of scholastic education.<sup>20</sup>

It is illuminating here to compare how other contemporary British medical superintendents perceived the personality of people with Down's syndrome and to consider how far they were influenced by the stereotypical pictures which Down and Fraser and Mitchell had created in their papers.

I shall first consider the ideas of Dr. Geo Wallington Grabham, who had inherited the highly structured and ordered system at Earlswood Asylum, which Down had helped to model there, and which clearly had influenced Shuttleworth's methods.

An inspection of the annual reports at Earlswood following Grabham's appointment shows that he, in fact, intensified Down's industrial and domestic training ensuring for example that far more female patients were<sup>21</sup> "made useful about the place". His educational aims were therefore close to those of Shuttleworth and were similarly unlikely to allow the emergence of individual personalities.

The case books reveal that Grabham did not actually refer to the people with Down's syndrome as 'Mongols' or 'Kalmuc idiots' as Shuttleworth did, but categorized them as strumous cretins, possibly because tuberculosis continued to be the main cause of death in the Asylum. In keeping with this conception of the syndrome, he described their temperamental 'type' as scrofulous and attributed certain common mental<sup>22</sup> attributes to it - imitative (noted by Down), likes music (a characteristic of Fraser's patient), affectionate (another characteristic of Fraser's patient). However, he did not enter 'tuberculosis' or 'phthisis' as the cause of Down's syndrome; like Shuttleworth and Down he recorded events during the



mothers' pregnancies which could have precipitated degeneration as the actual cause, for example "mother was frequently visited by an insane clergyman"<sup>23</sup> and "mother was frightened by own mother having a severe fit".<sup>24</sup>

Other staff at the institution, however, who were probably not familiar with the characterisations of Down's syndrome, did occasionally enter their own observations, for example A.R., a nine year old girl admitted on the 26th September 1878, had been said to be capable of very fair imitation by Grabham, but her school report, which was written one month after her admission stated that "she has but a poor idea of using her hands and can scarcely imitate a simple action correctly". Grabham, himself, recorded that she was also "rather more shy than other children of the same type", which probably meant that she did not fulfil another aspect of the psychological stereotype - an affectionate disposition (incidentally, 'shy' A.R. did not remain at Earlswood long; her parents took her home for a holiday at Christmas in 1878 and did not return her because they said that "they could not do without her").

I shall now consider some ideas about the mental characteristics of the person with Down's syndrome which were held by a Scottish medical superintendent, William Wilberforce Ireland, who appears to have operated a more relaxed regime at the institution, the Royal Scottish National Institution at Larbert, which he directed.

Indeed, one of the first comments which the Commissioners in Lunacy made when they visited the institution on the 19th February 1879 was that "the children are contented and in good humour, which is evidently the result of kind treatment and is no doubt<sup>25</sup> due to the great amount of freedom, which they enjoy"; and their report of the 4th July 1879 similarly noted "the demeanour of the inmates showed that they are under a kindly rule and not oppressed by any irksome<sup>26</sup> discipline." These comments are not surprising; Ireland was clearly very careful not to abuse his power, being conscious of the consequences of its possession. He, in fact, wrote on this subject:

The man whose every whim is immediately gratified by the ready servility of others is in a position very dangerous to his own advancement. By satisfying every desire, his appetite is increased; by continually gratifying his appetite his will is enfeebled; by never disputing his opinion or correcting his errors, his judgement is deranged. The flatterers fan his most languid caprices into a glow. His selfishness is continually nourished by the eager sacrifices made to his half-formed wishes, and the rights of the other men appear of no account...Power is nothing if it is conscientiously applied. The man who gives only to the deserving, who punishes only the guilty, who absolves the innocent, whose testimony is inexorably true, has really no power at all. An imperious sense of duty rules his way.<sup>27</sup>

Ireland obviously came to Larbert with some considerable insight and wisdom. It must be said that he was over ten years older than Shuttleworth when he first became superintendent and had not only written several books including 'A History of the Siege of Delhi by an Officer who Served there'(1863) and 'Studies of a

Wandering Observer'(1867), but had spent ten years travelling all over Europe after a serious war-injury,<sup>28</sup> which left him with only one eye.

Ireland does not seem to have just mindlessly repeated aspects of Fraser's or Down's characterisations of the person with Down's syndrome; he makes no reference, for example, to their capacity to imitate, to be affectionate, to like music etc., but it does appear that he was influenced by one important feature of the Fraser-Mitchell stereotype ie. the low intelligence of Elizabeth Meldrum. He was actually present at the quarterly meeting of the Medico-Psychological Association of Scotland when the paper by Fraser and Mitchell was presented, and he commented that "the paper had interested him extremely and he hoped it would open the field for a new type of idiocy...He could not say that he had ever met such a type or felt in his own mind the necessity of classifying it. But the subject was almost entirely new to him, and he would certainly look and see whether he could find any members of the class<sup>29</sup> which Dr. Mitchell and Dr. Fraser had described."

Ireland therefore began his study of Down's syndrome with the preconceived notion that 'Kalmuc idiots' had the intellect of "a child from a year to eighteen months old" and some six years later had not altered his opinion of them, nor recognised variations in their intelligence as he wrote:

The intelligence is generally very low...in the mental character there is a deal of passive obstinacy.<sup>30</sup>

Part of the reason for this may lie in the very small number of people with Down's syndrome, whom he appears to have had the opportunity to study. He estimated that only about 3% of 'idiots' were 'Kalmucs',<sup>31</sup> and based on the number of patients at Larbert in the year before he published his paper containing the estimate ie. in 1881 (one hundred and twenty seven people - seventy eight boys and forty nine girls)<sup>32</sup> this would appear to indicate that there were only about four people with Down's syndrome in the entire institution.

In addition, it is possible that patients with Down's syndrome would automatically have been classed as ineducable on admission and therefore received only nursing care, as was certainly the case for a proportion of the patients.<sup>33</sup> What makes this eventuality possible is that Ireland adopted Esquirol's method of classification (1845) which was based on the single faculty of language; a classification which was highly likely to have confirmed Fraser's evaluation of E.M.'s intelligence.

<sup>34</sup>

#### Ireland's Classification

- Class 1. Comprising those who can neither speak nor understand speech.
- Class 2. Those who can understand a few words.
- Class 3. Those who can speak and be taught to work.
- Class 4. Those who can be taught to read and write.
- Class 5. Those who can read books for themselves.

While this classification obviously follows the

normal development of language, it was bound to lead to too low an estimation of individuals with a particular difficulty with speech such as people with Down's syndrome. Ireland, however, was actually quite sceptical about parents who suggested that their child's intelligence was greater than his oral language development indicated and he said of these parents:

They will say, "He is very clever, only he does not speak, but he can understand everything that is said of him" and when this is tested it will be found that the child can execute some very simple commands, such as to shut the door or pick up his hat. Sometimes the words have to be eked out with pantomimic signs, so that often the child is found not to understand more than a score of words.<sup>35</sup>

Recent studies do, however, indicate that the level of speech development in people with Down's syndrome may not be related to the child's intelligence. Reasons given for this are ear infections, which cause hearing loss at a critical time in the child's language development; a fundamental problem in the way that the brain processes the sound signals coming in from the ear; and hypotonia of the muscles used for speech, so that the child is unable to co-ordinate them to form the words properly.<sup>36</sup> This last explanation, of course, was the one believed by Down to be the cause of the 'Mongolian idiots' problem with speech and was the reason for the use of the tongue gymnastics.

An important consequence of Ireland's low estimation of people with Down's syndrome was the fact that this would have led to their immediate discharge

from the institution if they reached the age of eighteen years there. This was the general requirement of the Commissioners in Lunacy for all children who reached this age except for the very few who were believed to be "susceptible to further improvement" or who were capable of becoming a paid employee in the institution. (The decision had been taken in 1876<sup>37</sup> to retain a small number of people over the age of eighteen years, who fulfilled the stringent requirements for continued residence. In that year, for example, only four such cases (three men and one woman) were retained and these all fell into the category of those who could be employed in the institution (each of these was paid a wage of five pounds per annum).<sup>38</sup>

The discharged adults were sent to their family homes and then subsequently sometimes were admitted to insane asylums (as of course had happened to Elizabeth Meldrum), a practice which Ireland strongly disapproved of. He wrote on the subject:

I have frequently seen old pupils discharged from the Larbert institution in asylums...I have often been shocked by the degeneration in their manners...Imbeciles are generally weak, timid, and imitative. In a single night passed in an asylum for adults, they learn practices which they never forget. They are often terrified by the wild words and antics of maniacal patients, catch up the oaths and curses which float about, learn their lowest habits and imitate their wild movements. Naturally soft and credulous, they sometimes adopt the delusions which their insane companions take the trouble to teach them.<sup>39</sup>

It might be expected that the compulsory discharge rule at Larbert would, in practice, not have

really affected people with Down's syndrome because of their inability to survive in the 'idiot asylums' as judged by their reported regular deaths in childhood at Earlswood Asylum and at the Royal Albert Asylum (see over).

Data available from the Royal Albert on mortality of people with Down's syndrome ( thirty cases, admitted between 1870 and 1878)

1. How long did they live after admission?

<u>No. of years</u>	<u>No. of cases</u>
2	2
3	6
4	2
5	1
6	2
More than six years	2
Discharged	6
Information unavailable	9

2. What did they die of?

<u>Cause</u>	<u>No. of cases</u>
Phthisis	10
Congestion of brain	2
Scarlatina	2
Bronchitis	1

3. What age did they die?

<u>Age</u>	<u>No. of cases</u>
Less than eighteen years	7
More than eighteen years	5

Table 2.



However, the death of anyone at Larbert was quite unusual during the period when Ireland was superintendent. There were, in fact, only fifteen deaths in the ten years that he was there (ave. population of the institution was one hundred)<sup>40</sup> compared with two hundred and four deaths at Earlswood in the eight years from 1859 to 1868<sup>41</sup> (ave. population of the institution was three hundred and forty eight) so that the average annual mortality at Earlswood was seventy three per thousand.

Obviously it is difficult to say with certainty the reasons for these differences in mortality. It is possible, however, that admission policies may have been at least partly responsible for them. As was stated earlier, no one was admitted to Larbert after the age of thirteen, whereas the very elderly suffering from senile dementia were sometimes accepted at Earlswood. At all three institutions a percentage of the cases were selected by election (1/2 at Earlswood and 2/3 at Larbert); a process which Ireland describes as like a lottery with the subscribers giving "their votes to one or other as pity, solicitation or fancy might dictate."<sup>42</sup> However, there does appear to have been a difference in the form of selection of the remaining cases. At Larbert, the remaining one third were nominated by the Directors and were intended for candidates whose parents or guardians might not have the

means of influencing a sufficiency of votes. Ireland visited each one of these candidates whom he could reach in a day's journey, and was able to recommend that those cases whom he perceived as likely to deteriorate rather than improve should be rejected. No form of selection of the payment cases occurred at Earlswood or the Royal Albert, and this would therefore have probably resulted in more severely handicapped payment cases being admitted to these two institutions.<sup>43</sup>

It is also possible that as Ireland seems to have placed greater emphasis on the happiness of the children at Larbert than on order and discipline that this may have contributed to their general well-being and enhanced their survival prospects;<sup>44</sup> a number of studies do show that the functioning of the immune system is influenced by depression.

It is pertinent to this discussion that far more children died at Larbert after Ireland left it. This was in spite of the fact that the institution had a newly-increased water-supply, which Ireland described as a "serious want" in his time.<sup>45</sup>

<u>Year</u> (Ireland left in April 1881)	<u>No. of deaths</u>
1882	6
1883	3
1884	8
1885	10
1886	17

No. of Deaths after Ireland left Larbert: Table 3.

The new resident superintendent, who succeeded him, A.A. Skene, was not medically qualified and this may have contributed to the increased mortality; he, perhaps, would have been less skilled than Ireland in judging the life expectancy of the cases who were admitted as a result of selection by the Directors.

In addition, Skene does not appear to have been a leader who was likely to have given a very high priority to the happiness of the children or the staff. His authoritarian attitudes are clear in his letter to a woman whom he was about to appoint as a matron. He wrote:

You will clearly understand that you are to take all your instructions from the Superintendent [himself] and be responsible to him for the proper care of the Inmates and conduct of servants and never to absent yourself from duty without his express direction and to conform conscientiously to any order given by him which he considers calculated to the efficient working of the institution.<sup>46</sup>

His letter over the removal of a pupil also shows that he did not accord the parents of the children many rights either:

I have to notify with some degree of regret at least, the discharge of the above named which took place on the 7th at the request of his mother.

If you refer to my note of the 5th you will observe that this boy was admitted the previous day having been brought from Kircudbright by his mother and on account of the length of her journey I allowed her to remain in the institution over the night - the result of this indulgence being that on the following morning the mother abruptly informed me she would not allow her son to remain in such a place- I tried to persuade her to what I considered right but failed to induce her to let the boy stay. Hence his removal as already stated.<sup>47</sup>

## Conclusion

In conclusion it may be said that there is no doubt that John Langdon Down's and Arthur Mitchell's theories of Down's syndrome were important influences on the way in which the British superintendents of the 1870s perceived the 'Mongols' who were being trained in 'idiot asylums'.

In the following chapter, I shall examine the effect which the American conceptions and treatment of the syndrome exerted on George Shuttleworth's attitudes towards people with handicaps.

#### CHAPTER FIVE: NOTES

1. Lionel Penrose, in particular. See Penrose and Smith Down's Anomaly (London: J. & A. Churchill, 1966), p.1.
2. "Obituary George Edward Shuttleworth" British Medical Journal i 1928: 1004.
3. J. Forster and J. Wilkes Report of the Commissioners in Lunacy (1870). Archives Royal Earlswood Asylum.
4. The first five hundred cases admitted between 1870 and 1878 to the Royal Albert Asylum. Archives Royal Albert Asylum.
5. Op. cit. note 2 p.1004.
6. G. E. Shuttleworth "Cranial Characteristics of Idiocy" (1881) in The History of Mental Retardation Vol.1 eds. Marvin Rosen, Gerald R. Clark, Marvin S. Kivitz. (Baltimore: University Park Press, 1976) p.242.
7. Elaine Showalter The Female Malady (London: Virago Press, 1987) p.125.
8. G. E. Shuttleworth "Fourth Annual Report 1874", archives Royal Albert Asylum. In a later paper, Shuttleworth did mention that a third of the cases had a phthisical history - "Clinical Lecture on Idiocy and Imbecility" British Medical Journal i (1886): 185.
9. G. E. Shuttleworth Third Annual Report Royal Albert Asylum, 1873 Archives Royal Albert Asylum.
10. G. E. Shuttleworth "Intemperance as a Cause of Idiocy", British Medical Journal ii (1877): 308-309.
11. Ibid. p.309.
12. Case 211. Archives Royal Albert Asylum.
13. G. E. Shuttleworth op. cit. note 10 p.308.
14. W. F. Bynum "Alcoholism and Degeneration in Nineteenth Century European Medicine and Psychiatry", British Journal of Addiction 79 (1984): 59-70.
15. G. E. Shuttleworth op. cit. note 10 p.309.
16. Op. cit. note 4.
17. G. E. Shuttleworth First Annual Report Royal Albert Asylum, 1871 Archives Royal Albert Asylum.

18. Ibid.

19. G. E. Shuttleworth Second annual report Royal Albert Asylum, Archives Royal Albert Asylum. As Shuttleworth himself put it: "The accession of female inmates of a useful class has long been a desideration in the economic arrangements of the institution".

20. G. E. Shuttleworth op. cit. note 6 p.242. In 1886, Five years later, he wrote in a very similar way of their mental characteristics: "Mentally, they have good imitative powers, are often very fond of music, and dance and drill well" G. E. Shuttleworth "Clinical Lecture on Idiocy and Imbecility" British Medical Journal i (1886): 183.

21. G. W. Grabham Annual Report Earlswood Asylum, 1870 Archives Royal Earlswood Asylum.

22. For example - A.B. was described as very imitative.  
E.M.W. was described as good at imitation.  
A.M.R. was described as having very fair imitation.

23. E.M.W. admitted 30th May 1878.

24. A.M.R. admitted 26th September 1878.

25. "Report of the Commissioners in Lunacy, 19th February 1879", in Patients' Book Archives of the Royal Scottish National Institution.

26. "Report of the Commissioners in Lunacy, 4th July 1879", in Patients' Book Archives of the Royal Scottish National Institution.

27 W. W. Ireland The Blot upon the Brain. Studies in History and Psychology. 2nd edition (Edinburgh: Bell & Bradfule, 1893).

28. L. Kanner A History of the Care and Study of the Mentally Retarded (Springfield: C. C. Thomas, 1964) Details on Ireland's life pp.104-106).

29. W. W. Ireland "Notes and News. Case and Autopsy of a Kalmuc Idiot", Journal of Mental Science xxii (1876): 161.

30. W. W. Ireland "Diagnosis and Prognosis of Idiocy and Imbecility", 1882, in The History of Mental Retardation. Collected Papers, eds M. Rosen, G. R. Clark, M.S. Kivitz (Baltimore: University Park Press, 1976) p.255.

31. Ibid.

32. "Report of the Commissioners in Lunacy (1881)" in Patients' Book Archives R.S. N. H.

33. "Report of the Commissioners in Lunacy (1879)" in Patients' Book Archives R. S. N. H.

34. W. W. Ireland On Idiocy and Imbecility, 1877, in P. Achenbach Mental Subnormality (1324-1961) PhD. thesis p.138.

35. W. W. Ireland op. cit. note 30 p. 250.

36. J. Dennis "Communication, Speech and Language", D.C.A. Fact Sheet, February 1985.

37. "Report of the Special Meeting of Directors held in the Religious Institute Rooms. Glasgow. 22nd December 1876", Archives Royal Scottish National Hospital, Larbert.

38. Ibid. 27th December 1876.

39. W. W. Ireland "Admission of Idiotic and Imbecile Children into Asylums", J. of Ment. Sci. xxxii (1886): 189.

40. W. W. Ireland "Notes from Soetre's Institution for Imbecile Children near Bergen", J. of Ment. Sci. xxxiv (1888): 87.

41. J. L. H. Down "On Idiocy and its Relation to Tuberculosis" Lancet ii (1867): 391.

42. W. W. Ireland op. cit. note 39 p.183.

43. Annual reports Earlswood asylum. Archives Royal Earlswood Asylum.

44. This was, in fact, even recognized by some in the nineteenth century. For example, see C.T. Leonard's work "Saving the Children", Proc. of the Nat. Conf. of Charities and Correction (1895): 192-197.

Emelyn Lincoln Coolidge, in the early twentieth century, commented specifically on infants' inability to fight disease when they were treated 'coldly' in institutions. E. Lincoln Coolidge "Care of Infants who Must be Separated from their Mothers because of Some Especial Need on the Part of the Child", Papers and Discussion of the Am. Acad. of Med. Conf. on Prevention of Infant Mortality, (1909) pp.199-206. Discussed by Rosen in G. Rosen Madness in Society (London: Routledge & Kegan Paul, 1968) Chapter on "The Origins of the Mental

Hygiene Movement".

45. W. W. Ireland op. cit. note 40 p.87.

46. "Letter from A.A. Skene to Miss Martins 11th March 1886", in Letters Book, archives R.S.N.H.

47. "Letter from A.A. Skene to George Johnstone. 11th July 1881", in Letters Book, archives R.S.N.H.



## CHAPTER SIX

### THE REPRESSED AT ELWYN

In this chapter I shall consider the early American approaches to 'idiocy' and Down's syndrome, largely through a consideration of the work of the physicians at the Elwyn Training School, Pennsylvania. In particular, I shall examine the ideas of Dr. Albert Wilmarth, the assistant superintendent of this institution, who, in 1888, presented a paper containing a new concept of Down's syndrome to a meeting of the Association of Medical Officers of American Institutions<sup>1</sup> for Idiotic and Feeble-minded Persons.

It was not, however, the first time that the medical officers of this association had had their attention drawn to the fact that this was a specific variety of 'idiocy' worthy of study in its own right. At the very first meeting of the Association in 1877 they were informed of the existence of Down's syndrome by Dr. H. B. Wilbur of the Syracuse School for the Feeble-minded<sup>2</sup> in New York.

Wilbur was a colleague of Edouard Séguin (Séguin had come to America at the invitation of Samuel Gridley Howe some years earlier) and it is therefore perhaps not surprising that his ideas about Down's syndrome should have been derived in large part from him. Wilbur referred to Down's syndrome as "that modified form of cretinism quite common in this country [America] and

Great Britain, which has been called the Mongolian or Kalmuc type of idiocy".<sup>3</sup> He reported his belief that not only was Sèguin correct in regarding it as a type of 'cretinism' (he did not, however, discuss the defining characteristics of this class of persons), but also like 'cretinism' as a form of degeneracy (this it may be remembered had also been the American view of 'idiocy' since the eighteen forties). He was more sceptical, however, of the British view that people with Down's syndrome were analogues of another race and stated "except in the oblique direction of their eye, I find little constant resemblance to the Mongolian race in these degenerate human beings."<sup>4</sup>

Wilmarth's concept in 1888 differed from Wilbur's report in that it was a product of the contemporary study and treatment of 'idiots' at Elwyn, rather than just an evaluation of the work of physicians from other countries.

Wilmarth's theory of the aetiology of Down's syndrome and its relationship to the treatment of 'idiots' in America

In searching for the cause of Down's syndrome Wilmarth had already accepted that people with the syndrome were of bad stock, having been strongly influenced by the supervisor of his work, Issac Newton Kerlin.<sup>5</sup> Kerlin, himself, drew his inspiration from Richard L. Dugdale's investigations which had been conducted as a result of his work inspecting county

jails for the Prison Association. In 1874 Dugdale had found in the New York county jail members of four inter-related families and further study led him to the discovery that other members of these families had high records of incarceration. Stimulated by these results, he undertook the detailed study of one particular family, which he fictitiously named the 'Jukes'. He managed to trace the family back to pre-Revolutionary days and found that since that time the various generations of the family had included paupers, criminals, prostitutes, people with syphilis and people with various handicaps. Dugdale's work thus helped create a relationship between people with handicaps and  
6  
immorality.

Kerlin also investigated family histories - specifically of child 'idiots and imbeciles' and was able to uncover what he believed was very strong evidence that they had come from degraded, weak stock (nervous, violent, drunken, even bestial parents were to be observed).

His information came not only from the records of Elwyn, but from other superintendents, to whom he had circulated forms with very leading headings at the 1879 meeting of the Association of Medical Officers of American Institutions for Idiotic and Feeble-minded  
7  
persons at Lincoln. He obtained data on these forms about birth order; parental ages at the birth of the

'idiots'; the history of the pregnancy, birth and infancy; information about the brothers and sisters, the parents and grandparents; and the condition (epileptic, hydrocephalic, choreic, microcephalic, hemiplegic, paraplegic, moral idiot, mute) and grade (idiot, imbecile, insane).<sup>8</sup> 'Mongolian idiocy' was not entered as a separate condition.

In order to analyse all this information, Kerlin constructed just two tables relevant to aetiology: one on birth order and the other on parental and grandparental antecedents.

<sup>9</sup>  
The table on birth order showed the number of 'imbeciles', 'defectives', 'normals' and miscarriages for each pregnancy from the first to the thirteenth for one hundred families. Kerlin did not attempt to draw any conclusions from this, but only reported his doubts that the children described by the parents as normal were truly so: "it is probable," he suggested, "that this judgement is in some cases biased."<sup>10</sup> He believed that the whole family must be degenerates and that birth order could not really be related to the production of idiots.

The other table on parental and grandparental<sup>11</sup> antecedents was based on the scheme which Dugdale had used in his study of the Jukes. Kerlin, however, appears to have regarded it as fresh evidence of a very strong relationship between 'stock' ie. grandparental and parental conditions: consumption, paralysis, epilepsy,

insanity, weakmindedness, nervous disorders and the occurrence of idiocy and imbecility.

In view of Kerlin's beliefs it is perhaps unsurprising that Wilmarth was led to investigate the family history of his patients with Down's syndrome, but to ignore completely the possibility of a relationship between the condition and raised parental age or high birth order (the other assistant superintendent, Martin Barr, also strongly influenced by Kerlin was later to dispute the possibility of any relationship between Down's syndrome and birth order). Wilmarth wrote on his studies of their heredity:

In three out of twelve cases the maternal grandmother died paralysed, and in one of these three the mother is said to be of below average intelligence, and to have had a "stroke". In a fourth case the mother had nephritis during pregnancy, and the father had been subject to diarrhoea. In a fifth the mother had attacks of hysteria; while in a sixth case there is said to be epilepsy in the mother's family. It is an interesting point to notice that where a neurotic history was found in the ancestry it was always on the maternal side.<sup>12</sup>

As has already been noted, neurosis had traditionally been viewed as the first step towards 'idiocy' within the psychiatric degeneration paradigm, and therefore Wilmarth would have expected to have found evidence of this in family histories. Bynum<sup>13</sup> has demonstrated how in the second half of the nineteenth century neurosis was still frequently regarded as a neurological (embracing such disorders as epilepsy), rather than a psychiatric category, and this explains why Wilmarth viewed any condition in the family history

which had some connection with the central nervous system as a form of neurosis.

In addition, Wilmarth's ready acceptance of a factor like 'death from paralysis' as indicative that the stock was degenerating is understandable when one examines Kerlin's work. This was one of the causes of death (along with phthisis and heart disease), which Kerlin regarded as worth recording in his family history tables.<sup>14</sup> Indeed, he assumed that any evidence of a degenerative or weakening complaint or any sign of 'weakness' in the 'stock' was a possible antecedent of 'idiocy', and made no attempt at all to compare his family data with that from a group of 'normal' children (Mitchell, it may be remembered, had some fifteen years earlier in Scotland compared his data on 'idiots' with that of the rest of the population).

Wilmarth would, perhaps, have been reluctant to question any of Kerlin's ideas; Kerlin was not only his superior, but by all accounts a very forceful character. As a later president of the Association put it:

So long as he [Kerlin] lived no-one perhaps would have thought to challenge his relation to the work or to question the correctness of his leadership, for even those who sometimes differed with him or were made to feel the strength of his opposition recognized his inherent force of character.<sup>15</sup>

His examination of the state of the parents' and grandparents' health was not, however, the only method used by Wilmarth to investigate the cause of Down's syndrome; he also turned his attention to the brain in

an attempt to find an explanation for the unusual physical and mental characteristics found in Down's syndrome. In 1888 the chromosomes had not even been discovered (this did not occur until 1891<sup>16</sup> and it was some time before their significance began to be understood) and the interpretation of the mode of inheritance did not differ much from that expounded by Howe forty years earlier, which, it may be remembered, allowed for the inheritance of acquired characteristics. Dugdale stated his belief that if the brain of the parents had been damaged by their lifestyle then this would be expected to affect the cerebral development of the offspring and cause them to have similar negative behavioural characteristics to those which had produced the brain damage in their parents in the first place. The latest generations of a family would thus have the most seriously abnormal characteristics, having degenerated the furthest, and they would be expected to have even worse offspring unless their lifestyle were radically changed and some physiological improvement therefore produced. Dugdale, for example, wrote:

Environment tends to produce habits which may become hereditary, especially so in pauperism and licentiousness, if it should be sufficiently constant to produce modification of cerebral tissue.<sup>17</sup>

Furthermore it was the brain which Wilmarth believed determined, as well as just controlled, physical and mental characteristics, and the fact that people with Down's syndrome appeared to be a specific

type suggested that they had the same abnormality of brain development.

He was optimistic about the prospect of finding this particular brain defect in Down's syndrome because the search to find lesions in the central nervous system for other conditions (these would also have been considered, when congenital, to have been the result of degeneration) had been successful in the nineteenth century bringing tangible results. Duchenne had differentiated paralysis of different types and identified them with distinct diseases in terms of spinal or neural lesions, as well as, in 1855, identifying infantile paralysis as due to a lesion in the anterior horn of the spinal cord; Jean Martin Charcot had made clinical and pathological studies of locomotor ataxia and lesions in muscular atrophy and his American student, Weir Mitchell, who had been in charge of a Union base hospital during the Civil War had made<sup>18</sup> important studies of nerve injuries.

Wilmarth was able to examine the brains during the post-mortems of two children, who had died at Elwyn, one a Negro and the other a white boy. (The classification of a Negro as a 'Mongol' is a clear indication that Wilmarth, like Wilbur, had rejected the racial atavistic explanation of Down's syndrome.) He observed that in both brains the pons and medulla were very small and deficient in nerve cells in certain portions, and that



in the hemispheres the ganglion cells were scattered and small in places. He also noticed that the blood vessels throughout the brain were abnormal and this observation, combined with a report from Dr. Oliver of Philadelphia on the eyes of people with Down's syndrome, in which he stated that he had found a peculiar appearance in the wall of the blood-vessels (he described them as having the appearance of macaroni, which had been soaked in water); and also with the knowledge that people with Down's syndrome had poor circulation, so that their fingers and toes were liable to ulceration, led him to consider that Down's syndrome was an abnormal nutritive condition. (He rejected the possibility that heart abnormalities could be the cause of the poor circulation).

He then posed the question of which abnormality in the brain- the abnormal pons and medulla or the defective cerebrum- was responsible for producing the person with Down's syndrome:

Of these two distinct pathological conditions, which shall we regard as the essential one in producing the abnormal nutritive and mental condition and the constant and characteristic physical appearance which constitutes Mongolian idiocy? or may they both bear a causative relation to the conditions in question?<sup>19</sup>

In favour of the imperfect development of the pons and medulla being the cause of Down's syndrome were the 'facts' that in a large number of post-mortem examinations of 'feeble-minded' children, nearly every part of the cerebrum had been reported to be defective,

but destruction of the pons and medulla from disease had been rarely found in the 'idiot'. In addition, certain 'centres' had been found in the pons, for example, the respiratory control centre (now known to be in the medulla), and Wilmarth postulated that a nutrition control centre could also be positioned there. His idea of the existence of a nutrition control centre was not an original one; this had been recently discussed at the Philadelphia Neurological Society and the possibility considered that the existence of such a centre could explain the condition of a child, who had been presented to the Society because he had one vertical half of the body less developed than the other.<sup>20</sup>

One consequence of this hereditary/pathological explanatory framework for the treatment of those with mental handicap was Kerlin's belief that those children with brain defects should be taken from their homes and treated in 'well-organized' institutions, which alone could produce any improvement in the mental development of these degenerates. Such institutions would be able to ensure "the practice of virtue" and "obedience to hygienic laws", and would also provide a specialized form of education including industrial training, which would be "directed towards the presumptive place the child is to occupy when discharged from the institution."<sup>21</sup>

The discipline of an institutional regime so far from being considered unnecessary, as Mitchell had

argued, was considered to be actually therapeutic in itself. Kerlin appears to have considered that the 'practice of virtue' demanded the maintenance of emotional distance between the staff and the pupils. For example, in the case of a little girl at the institution at Elwyn, Beckie, he writes disapprovingly of any bonding:

Her attachment was always confined to but one individual at the same time, and the bond was irksome enough to the consenting party, for her affection was too tyrannical in its demands to be comfortably supported.

and

Beckie...had an attendant, and between them a reciprocal affection sprang up; the latter possessed the rare quality of persons in this station, of not desiring, and concerting, to monopolize the attachment of her little charge - she compelled her to look to many sources for her entertainment, and never became herself the victim of the child's tyrannical habits.<sup>22</sup>

Although parental authority and obedience were generally stressed in upbringing, institutionalization was, at the time, not the only form of care deemed appropriate in America for other 'types' of children, who could not be kept in their own homes. In fact, <sup>23</sup> Rosen reports that between 1850 and 1880 there was a focus on the psychological dimension of child-welfare from those entrusted with the responsibility of providing care for neglected, dependent and delinquent children, and a consequent belief that children should be given the privileges of family life; foster families were considered the best form of substitute care. Kerlin

therefore had to argue that the children at Elwyn required a different form of treatment from other children because they were 'unnatural',<sup>24</sup> and he, personally, played a large part in promoting institutional care, so that by 1880 there were fifteen publicly supported institutions especially for 'idiots' in the United States primarily concentrated in north-eastern states.<sup>25</sup>

Another belief with treatment consequences, derived from the biological framework, was that if the 'feeble-minded', who were left to their own devices, were allowed to produce offspring, these offspring would have degenerated even further. Ways therefore had to be found of preventing them from having children.

One means of achieving this was to institutionalize people until they were past childbearing age. Kerlin, in fact, had stated his belief that only the superior grades should be returned to their families and society following education and training at the institution at the very first meeting of the Association in 1877. In this belief he may have been influenced by the physician who had been chosen to be president of the Association, Edouard Séguin. The need to prevent the reproduction of 'cretins' and 'idiots' in order to stop the inheritance of these conditions had been argued for in France since 'idiots' first began to be educated there in the first half of the nineteenth century. 'Seclusion of cretins', 'restrictions on their

civil rights' and a 'prohibition on their marriage' had been suggested by the physician-educator, Ferrus, in his memoir on cretinism which had been read to a meeting of the French Academy of Medicine in 1850. The discussion which followed this meeting had highlighted the problem of preventing the marriage of 'cretins', and also the difficulty that they were born to people who were themselves not 'cretins'. In the latter case, it was argued that physicians should actively intervene to prevent the marriage of those whose state of health indicated that they might have a 'cretin'.<sup>26</sup>

Moves were soon under way in America to accommodate the 'incurables'. One of the first states to attempt institutional segregation in order to restrict marriage of the feeble-minded was Wisconsin. In 1888 (the same year as Wilmarth presented his concept of Down's syndrome) the Secretary of the Minnesota State Board of Charities, H. H. Hart, advised his colleagues that thousands of paupers could be prevented (and much tax payers' money saved) if feeble-minded girls were to be confined to an institution until they were too old to have children. Two years later he received support from a member of the Wisconsin State Board of Charities and Reform, H. H. Giles, who endorsed the move as a measure of "wise economy and enlightened philanthropy", and asserted that "the law of heredity required the confinement of those of weak intellects and strong

passions, thus limiting the reproduction of inherited idiocy". They were joined by the leader of the Wisconsin Teachers' Association, Albert Salisbury, and in 1895 the Home for the Feeble-Minded at Chippewa Falls was founded. None other than Albert Wilmarth, who had earned the reputation of having made the greatest number of pathological investigations of 'idiot' brains, was<sup>27</sup> selected to become the first superintendent. Vecoli reports that during his twenty three years as superintendent, Wilmarth waged a one-man crusade for eugenic measures; in his reports before the Wisconsin Conference of Charities and Corrections, before the State Medical Society, to the Legislative Visiting Committee, he never missed an opportunity to impress on his audience the need for preventing the reproduction of the 'feeble-minded'. More than any other person he was responsible for winning Wisconsin for eugenics.

The institutionalization of many people, however, was expensive and not all the 'feeble-minded' had been placed in one of the training schools. It was not long before a cheaper and more far-reaching alternative was sought; one solution was the development of restrictive marriage laws (as early as 1880, in his paper on the aetiology of 'idiocy', Kerlin had made a mention of the need for wise legislation, by which he, no doubt, meant<sup>28</sup> marriage restriction). Wilmarth was the prime mover in Wisconsin, campaigning vigorously for such a law; in 1907 he was successful and it became an offence for

'insane, epileptic and feebleminded persons' to marry or  
to have sexual intercourse.<sup>29</sup>

For some this was not enough because the law was difficult to enforce. Nothing short of mass sterilisation would suffice. One of the first people (in 1901) to attempt to have a sterilisation law passed to allow for the sterilisation of all non-improvable cases in every institution in Pennsylvania was Kerlin's and Wilmarth's colleague from the Elwyn Training School, Martin Barr. However, his Act was returned at this time by the Governor for what Barr describes as "the correction of some trifling technicality, and thus  
<sup>30</sup>  
failed to become law." In Wisconsin, Wilmarth was more successful and a sterilization law was passed in 1913, but only after considerable opposition from a number of  
<sup>31</sup>  
quarters, which Vecoli documents in detail. The major argument against such compulsory sterilization was that it was an interference with personal independence and individual liberty.

What is quite plain is that neither Wilmarth nor Barr ever made any reference to the question of 'individual liberty' and the rights of those with mental handicap. The next section of this chapter, on the characteristics of people with Down's syndrome and their treatment at Elwyn, it is hoped gives some new clues as to why these particular, influential physicians (as influential as Kerlin was in his day) felt able to

discount this question entirely, and also therefore to the actual origins of the negative eugenics movement in America.

Wilmarth's stereotype of people with Down's syndrome and their treatment at the Elwyn institution.

Wilmarth, unlike Shuttleworth, Grabham or Ireland does not appear to have been influenced by Down's or Mitchell's stereotype of the 'Mongolian idiot'. It is possible that he was unaware of Fraser and Mitchell's paper: 'Kalmuc idiocy: report of a case with autopsy, with notes on sixty-two cases' (1876) from his statement that "post-mortem examinations [of people with Down's syndrome] appear to have been neglected." And Down's book, On Some Mental Affections of Childhood and Youth, which developed his stereotype of the person with Down's syndrome had only just been published when Wilmarth presented his paper on 'Mongolian idiocy'.

Most of Wilmarth's observations of the 'mental characteristics' of people with Down's syndrome relate to their behaviour. They are described, for example, as "seldom, if ever malicious; may occasionally be obstinate, but are generally quiet and docile."<sup>32</sup> This selection of characteristics is a reflection both of the regime at Elwyn and the contemporary questions related to 'idiocy'.

As in the English institutions discussed in the previous chapters considerable emphasis was placed on discipline and order at Elwyn. The organization,



however, appears to have been even more authoritarian in its nature, with more drastic steps being resorted to in order to achieve obedience and submission.<sup>33</sup>

The undisputed masters were the physicians: Isaac Newton Kerlin (the Superintendent of the institution), Albert Wilmarth and Martin Barr. The staff and children were totally subservient to their wills, moods and whims. And such whims included Kerlin's directive to the teachers to train "the children to move on tiptoe, to lift doorlatches carefully and in all other movements and actions to avoid disturbances"<sup>34</sup> and his instructions to them over the precise way in which they should issue orders to the pupils; he stated that they must be "energetic, prompt and decisive - Arms fold! Into line! Dress line! Quiet! Order! etc." and he went on to say "these brief communications to the brains of our children should be so thoroughly drilled in them that the response shall be automatic."<sup>35</sup>

The teachers, matrons and attendants did, of course, have their own sphere of authority: ruling over each other as well as the children. This meant that they could to some extent take out on those weaker than themselves the humiliations they had suffered. And humiliating punishments were adopted, for example, the regular enforced wearing of strait-jackets,<sup>36</sup> the binding of a handkerchief around the mouth to prevent talking<sup>37</sup> and corporal punishment. Sometimes, too, boys

were forced to wear dresses; a punishment which traditionally had been used for persistent runaways, but which was employed if a boy particularly disliked this form of humiliation. Kerlin, however, forbade "the attendants and others" from carrying "switches, sticks<sup>38</sup> and canes" and entered in the Manual of Elwyn:

The passionate smacking, rapping of knuckles, pulling of ears, kicking, pinching, scolding, teasing, threatening etc., are all barbarous and disgusting methods, and only referred to here to warn all against indulgence in any such temper.<sup>39</sup>

'Any such temper' was forbidden not only because of the risk of injury to the child, but because it would reveal a weakness in the adult, which would have altered his/her relationship to the child, who had to be prevented at all costs from perceiving the teacher, matron or attendant at his own level. Punishment had, therefore, to be coldly administered and associated with what would appear to be the execution of justice.

The 'occasional obstinacy' of the child with Down's syndrome would have probably been considered to merit corporal punishment at Elwyn because this was viewed as a serious offence; the child was stepping out of his place. Barr reveals how apparent obstinacy was developed in the individual and how it was reacted to:

A high grade boy of nineteen had committed a fault that, although proven he would not acknowledge. Every effort was made to gain the confidence which he doggedly refused. Separated from his companions, placed on a low diet, exercising only with an attendant still he was defiant. Finally driven to the last resort, I spanked him and the second light stroke of the hairbrush brought a flood of tears and the confession.<sup>40</sup>

Physically weakening and mentally depressing a person through denying him food (sometimes a "cathartic - doses of calomel or salts" was also used in conjunction with a very restricted diet, for what Barr described as its "moral effect") and companionship, then humiliating him was thus one strategy to produce the submission. Persons with Down's syndrome (and other people with similar handicaps) could be expected to appear 'generally quiet and docile' when subjected to such control methods.

Another strategy for producing easily managable, docile individuals was castration. Kerlin was one of the first institutional heads to castrate some of his patients/pupils. And by the time that Wilmarth had developed his concept of Down's syndrome he was justifying the practice by claiming it could produce<sup>41</sup> "life long salutary results."

Barr's comments reveal, however, how the real benefit of the procedure went to the staff:

The child thus treated passes simply and unconsciously into that placidity, freedom from excitement and consequent content with ordinary pursuit of life that marks advanced age. Even lasciviousness, vulgarity and obscenity would become so modified that general oversight of numbers would have to concern itself chiefly with checking misdemeanours and improprieties whereas now it must forever forestall opportunities for immoralities.<sup>42</sup>

The behaviour of the farm animal was evidence in favour of his reasoning. Barr wrote:

By castration [we] render more docile because less passionate, the beasts of burden who, because harmless may rove at will unrestrained to mingle with the common

herd.

The lack of testosterone as a result of castrating the child not only reduced his sex-drive and made him less aggressive, but also seriously affected his development, as Barr recounted without any qualms:

The child then grows stout and acquires a large frame. There is no hair on the pubes or the face, the cheeks become round and prominent, and the chin is apt to be double. Boys come to resemble immense women. The singing voice also is that of a woman until puberty is reached, when it is found to be an octave lower.<sup>43</sup>

In addition, the operations, themselves, of testiectiony and oöphorectomy were not without risk. Barr commented from his own experience that "for a time the temperature does run alarmingly low." In people with heart conditions such risks would undoubtedly have been greater.

So low, however, was the position of the child in the institution that, like the farm animal, his physical and mental mutilation could occur without fear of any consequences.

Some children, however, of course, were stronger, physically and mentally, than others, so that they did not occupy the very lowest places. These were the boys and girls with only very slight handicaps or epilepsy (and no mental handicap at all), who were frequently regarded as the so-called moral imbeciles, whom Kerlin claimed, in 1887, to have had much experience of; he had seen in his "thirty years with feeble-minded children...numerous illustrations of this radical

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malady."

An important feature of 'moral imbecility' was maliciousness (a characteristic, which had specifically not been associated with Down's syndrome by Wilmarth), which generally took the form of hurting a smaller child, for example, one with Down's syndrome or a helpless animal. This is well illustrated by the behaviour at Elwyn of a thirteen year old, intelligent  
45  
'moral imbecile' with epilepsy, F.R..

Barr describes a pertinent incident:

In the afternoon he [the boy] went to walk with his attendant and while out stopped to play with a group of small children. He amused himself by hiding behind a tree and throwing stones with great force at them. He also struck several small boys with a stick. Just before going to bed he asked permission to pet a small dog that belonged to another boy. Watching his opportunity when he imagined the attendant's attention was engaged, he caught the dog in his arms squeezing it with all his might, and digging his nails into the poor creature's flesh, while he laughed with joy at its piteous cries.<sup>46</sup>

The boy's actions can be seen as the acting out of his situation of being at the mercy of his father's, doctor's and nurse's power; the viciousness to the weak being a means of discharging his bottled-up hatred.

F.R.'s father was a violent man, described as being very brutal towards his wife and frequently whipping his son. At Elwyn, F.R. was 'under the care' of Martin Barr, and in the morning had been the victim himself of what can only be described as very cruel treatment (described by Barr as the "drip-sheet" treatment). This was a punishment designed by him in which the patient was wrapped in sheets, which had been

immersed in cold water. He was then placed on a bed protected by rubber and enveloped with a blanket for five to ten minutes. The boy had had this treatment four times in the morning before the incidents with the small children and the dog, and nineteen times the previous day. The punishment followed a 'spasm', if the spasm were believed to be the simulation of a convulsion. Whether or not the convulsion was genuine was apparently determined by the boy's need to sleep afterwards; only if he fell asleep was he not punished.<sup>47</sup>

The boy frequently tried to protest to the nurse that he was not feigning:

What interest would I have to deceive you? I do not like to be put in wet sheets, and if I could help it I would surely try to stop these spasms.<sup>48</sup>

But his arguments were in vain because the nurse was simply 'carrying out orders' and he replied:

I do not know whether you have any interest in deceiving me, but I am sure that your spasms are not real. And I shall report you to Dr. Barr, who will give you a spanking if you continue.<sup>49</sup>

Incidentally, Barr seems to have frequently regarded medical problems as the child's or adult's fault and used corporal punishment to correct them. He goes to some lengths on the subject of incontinence to convey to the reader that the person recognizes the need to be beaten:

Not infrequently a child will suggest its own punishment...All milder forms of correction such as light diet, bed, loss of dessert etc. had been tried without effect. Finally one day he exclaimed: "I won't be good until I'm spanked. My mamma always spanked me

for this and it does me good." He was right, for two light spankings proved effectual. Another boy having the same habit responded to like treatment and for over three years gave no trouble.<sup>50</sup>

Barr's use of this 'disciplinary measure' and his instructions to F.R.'s nurse to record the conversation of F.R. when he was being punished suggest that there may have been an element of sadism in his actions.

F.R. continued while at Elwyn both to hurt those weaker than himself and to be mercilessly punished for the 'spasms'. Barr writes:

Directly after some of his spasms [and the 'drip-sheet treatment'] he seems to have a sudden and irresistible impulse to mischief. After the last one he took a scrubbing brush and, saturating it with excrement painted a smaller boy's face.<sup>51</sup>

The 'drip-sheet' treatment was used forty times in September, one hundred and three times in October, forty times in November, twenty six times in December, once in January, when F.R. became suicidal and Barr reports that he "discussed the best way to end his life; whether by poison or the opening of a vein" and that F.R. said to him:

But do you know, I think my mother was a ..... fool for sending me here, though I expect she was tired of me.<sup>52</sup>

Barr, however, did not relent and used his 'drip-sheet' treatment one hundred times in February when he finally abandoned it as having lost its usefulness. He reported at this time:

He is still under medical treatment for epilepsy as many of the spasms are genuine, although it is frequently hard to distinguish between the real and the assumed.<sup>53</sup>

This was an incredible admission under the circumstances (one may speculate that Barr was prepared to document his punishments of the inmates in order to attempt to justify them).

Barr makes no connection between his treatment of F.R. and F.R's behaviour to those weaker than himself. Instead he writes of F.R.:

While he is doing well here under strict discipline and constant surveillance, if he were to take his place in the world, he would be a fire brand among the flax, and the end would probably be a tragedy perhaps equalled, but not exceeded in the annals of crimes. His evil passions are only restrained, and the ancient Latin proverb: "Naturam expellas furca, tamen usque recurrent" may not be inaptly applied to him.<sup>54</sup>

Having described certain features of the regime at Elwyn and shown how they must have contributed, in part at least, to the production of 'the docile, occasionally obstinate, but not malicious' child with Down's syndrome, who was everyone's subordinate, as well as the object of their humiliation, I shall now examine the question of why this harshness of methods existed at Elwyn in the latter part of the nineteenth century in America.

Certain psychohistorians, it must be said, would largely reject this question, as they would regard any contemporary external, social factors or scientific developments relevant to this field of idiocy as incapable of accounting for the greater ruthlessness shown by particular individuals with power at the institution and for the increase in severity of the



practices there e.g. the introduction of castration and corporal punishment.

Alice Miller, for example, in her historical study, For your own good; the roots of violence in child-rearing<sup>55</sup> argues that survivors of childhood humiliations (the majority of us) are dangerous carriers of infections, who continue to infect the next generation with the virus of "poisonous pedagogy". Thus, if Kerlin and Barr had been found to be brought up in particularly rigid family systems where status and degree of power determined whether actions were judged to be good or bad; where severity was regarded as a good preparation for life and tenderness harmful; where responding to a child's needs was believed to be wrong; where the child's will had to be broken as soon as possible; where it was believed that hatred could be done away with by forbidding it; where a high degree of self-esteem was regarded as harmful, then this was enough to understand their behaviour at Elwyn; a child treated in this way could train others the same way as he had once been trained.

This type of historian would probably explain the introduction of castration into the institution as a continuation of Kerlin's, Barr's and Wilmarth's parents' conditioning that sexuality along with other strong feelings was harmful and needed to be repressed. The practice of castration could spread and be accepted by

so many at the time, because they too had been reared with similar ideas.

This mode of explanation has the attraction that it also offers a reason why certain historians, who have written about Elwyn have completely ignored the severe elements of the system and have selected and interpreted passages from the records, manual and publications of Elwyn in a very positive and, I would consider, unrealistic way.

Ivor Kraft, for example, writes:

During the decades of the 1880's the notable events of the Pennsylvania School, for example, carry a distinct resemblance to genteel, countrified Victorian living. The Christmas and Thanksgiving dinners; the succession of concerts, plays, entertainments; the stereoptican exhibitions and visiting lecturers; the May Days, "Buttercup Days", strawberry-picking frolics, the musicales, recitals, impersonations, fire-work displays, open air concerts illuminated by Chinese lanterns, even the occasional funerals with flowers being scattered on the graves while the cornet band plays softly in the background - events such as these which seem to have crowded the days at Elwyn give an impression of almost aristocratic grace in living and it is no wonder that many of the pauper idiots may have been heart-broken at the thought of leaving.<sup>56</sup>

and:

In the early 1880s...there is to be sensed in the records and reports a genuine measure of that ordered, calm, family-style life which Séguin often cited as the essence of moral treatment.<sup>57</sup>

At the same time, he also quotes the range of formal punishments at the institution without commenting  
58  
on the harshness of some of them.

It is highly unlikely that children subjected to rigid discipline would have been heartbroken at leaving \* whatever the organized events. It is also improbable

that Séguin would have approved of the regime at Elwyn (particularly while it was directed by Martin Barr). Although Séguin believed that repression could not be avoided in attempts to achieve obedience, he also considered that severity was cruelty and that only the mildest methods possible should be used to achieve control.<sup>59</sup> Indeed earlier American superintendents also believed that only very gentle treatment should be used in training the children with handicaps under their care. For example James B. Richards, the first superintendent of the institution at Elwyn wrote:

Whips and rods have never been used as a means of bringing our children to obedience.

And he shows how he tried to establish good relationships with his pupils:

Having often noticed that an experienced nurse would endeavour to arrest the attention of a new born infant, not by showing it some pretty toy, but by talking to it as if it were an intelligent being, I took this for my guide; and preparing myself for the task, laid upon the floor an hour each day, reading aloud to this imbecile boy, as if he understood me perfectly...This practice of reading and talking was steadily perservered in for a number of weeks; during which time, I was enabled to gain his confidence, little by little; and during the four years which followed, he more than answered my highest expectations, becoming a marvel to his friends and those who had previously known him. At the end of that time, he could read intelligently and walk about like other children.<sup>60</sup>

Such individual attention was possible because of the tiny number of pupils which Richards had.

The historian, Scheerenberger, also paints a picture of a mild regime under Kerlin, Wilmarth and Barr at Elwyn by very selectively quoting Kerlin's directions

to the attendants and deliberately omitting any reference to the beatings and use of strait-jackets. He writes:

Kerlin tolerated no ill-treatment,

And then quotes certain lines from the Manual at Elwyn which obviously appealed to him:

It is distinctly and positively enjoined that our rule of government is one of kindness, and that no meanness towards the children will be tolerated...attendants and others are positively prohibited from carrying switches, sticks, canes etc....the position of the attendant is a sacred one. Its requirements are to improve and cheer the most helpless of earth's unfortunates...to teach them to be kind, obliging, and respectful, you must be so yourself.<sup>61</sup>

Miller's psychoanalytical approach could explain these historians' choices of only the pleasant elements as their inability to accept the truth that cruelty is often inflicted upon the innocent. They, she would argue, as small children had learnt that all the cruelty shown in upbringing had to be regarded as just punishment for wrong doing. Hence, too, the failure by these historians to make any connection between the 'moral imbecile' and very cruel and formal punishments.

As no information can be found about the childhood experiences of Kerlin, Barr, Wilmarth, Kraft and Scheerenberger, the extent of the validity of this explanatory framework is difficult to gauge.

An additional possible explanation for Scheerenberger's and Kraft's portrayal of the physicians at Elwyn is that they wished to paint a positive picture

of those who were prepared to devote their lives to the care of those with handicaps, as they had made the assumption that they were 'good' people. I would suggest that this idealised vision of such individuals comes from their lack of personal experience of institutional management, and from the fact that only a small number of critical accounts of institutional regimes had been published when they were writing, over ten years ago.

Another questionable feature of the reasoning involved in Miller's work is the assumption that she makes that childhood experiences are all important. The question which arises, of course, is how important are later adult experiences, relationships, traumas, education in modifying the values we learn as children?

Miller would consider that psychoanalysis could enable a change in values to take place, but discounts a role for systems and social or economic forces in fundamentally shaping behaviour because of their inability actually to alter our ingrained values. She, however, does not have any hard evidence for this.

It is possible, for example, that Kerlin's experiences in the army during the American Civil War (he served for over a year in the Army of the Potomac) may have played a role in his belief that strict discipline, obedience, order, place etc. were of prime importance at Elwyn, and certainly the institution was run on military lines.

Miller would also argue, however, that Kerlin would have been unprepared to serve in an army or fight in the American Civil War, if he had been protected, respected and treated with honesty by his parents. His enlisting (and that of other young men) would then be seen as a way of diverting their feelings against their parents onto a clear-cut enemy, whom they were permitted to hate freely and with impunity. This explanation discounts entirely, however, the possibility that aggressiveness is an innate characteristic.

The historian of ideas would approach the problem of the increased severity of treatment of 'idiots' and 'imbeciles' at Elwyn differently, probably perceiving it as a manifestation of a new morality created by a combination of the permeation of evolutionary ideas into psychology, as seen, for example, in Herbert Spencer's work (Kerlin was well acquainted with his work and instructed all the teachers to read his work on education),<sup>62</sup> and the results of post-mortem examinations of the brains of 'idiots' etc., which appeared to reveal a real physical abnormality in them which could not be remedied by education. There was no equivalent of Arthur Mitchell in America, who was able, or given the opportunity of putting a counter-argument to the theory that the degree of development of morality or 'goodness' was related to the degree of development of physical and mental characteristics, and the possession of gross defects in the brain of certain 'idiots' made them

inevitably immoral, criminal and even evil, so that they required restraint and castration.

A religious man like Kerlin would not necessarily have found this incompatible with his Christian philosophy; in the Gospels, Jesus frequently referred to epileptics and the insane as possessed with evil spirits.

The psychohistorian would argue that the evolutionary/pathological model would have been rejected by any of Kerlin's contemporaries who had not been subjected themselves to 'poisonous' child-rearing methods when they were helpless.

Another possible explanation for the harsher treatment of the inmates by the physicians could be the increase in numbers at the institution by the time Kerlin became superintendent. According to the annual reports, there were one hundred and eighty pupils by 1869 compared with only nine in 1854 (there were two teachers for these nine pupils). With a large number of pupils/patients under their care the possibility of the physicians being able to establish relationships with them was greatly reduced, and the likelihood therefore of their perceiving those with handicaps (and with annoying behaviour problems) in a negative way very much increased. These attitudes would probably, in turn, have resulted in the pupils disliking the staff and submissiveness being the best response which those in

charge could hope to achieve from them. In support of this argument is Arthur Mitchell's positive portrayal of the 'idiot' - he was never faced with the management problems of a large institution.

Whatever the reasons for the increase in the harshness of the measures at Elwyn to achieve 'docility', it is clear that their success in preventing any opposition on the part of the majority of inmates led to the creation of a climate where the physicians came to believe that it was their right to treat the inmates as they considered best. What was in the interests of those with mental handicap thus became X  
— confused with what was wanted by those managing the institution, who were able to use contemporary scientific theories (which plainly reflected the power structure in society) to justify and legitimise their actions.

What made the ideas which sprang from this institution so influential was the existence of a machine - the Association of Medical Officers of American Institutions for Idiotic and Feeble-minded Persons- for propogating them to all the leaders of the mental handicap movement in America. Kerlin's role as secretary gave him the opportunity to shape the ideas which came from this association and the majority of people accepted their validity.

Later, both Wilmarth and Barr used the Association meetings to suggest treatment measures which reflected



their perception of the person with mental handicap as an individual who unquestionably was not entitled to the same rights as anyone else.

For example, Barr, who had become the chief physician of the Training school at Elwyn in 1893, addressed the Association in 1902<sup>63</sup> and argued that "by permanent separation only is the imbecile to be safeguarded from certain deterioration and society from depredation, contamination and increase of a pernicious element." He also stated that this information should be urged "upon the notice of any and every properly constituted authority." The authorities had to be made aware of the necessity of subjecting the defective to firm control and regular occupation under insistent supervision. The possibility of releasing the trained defective was objectionable because such individuals could contribute to the running costs of the institution. Even if these people did yearn for a normal life outside the institution they should not be allowed this in case they married or entered into a life of crime. Castration, he argued, would solve a lot of problems. He also suggested that colonies be established which would be self-sustaining so that society would be immune from the "burden" of the imbecile. On the other hand, the helpless 'idiot' should not be admitted at all to the asylum as he was an expensive "burden" to the institution.

A few years later Wilmarth addressed the Association<sup>64</sup> over the similar question of the release of the 'feeble-minded' from institutions. He, like Barr, deplored parental attempts to have the children who were capable of earning a living removed. He disapproved strongly of parents who even after they had had it explained to them that public safety demanded that their children stayed were prepared to go to court to try to obtain their release (in Wilmarth's state, Wisconsin, the power of release had been placed in his hands, but he states that parents would still go to court on process of habeus corpus). Wilmarth did not like the fact that he sometimes found it "difficult to convince the judge or jury, before whom such a case may come, that a child is unfit for discharge." He therefore suggested that the Association should set stringent requirements which alone should be weighed by judge or jurist:

He should be able to maintain himself and those he may have placed dependent on him. He should have sufficient judgement to appreciate the personal and property rights of others, and sufficient will-power and self-control to respect them.<sup>65</sup>

A subsequent discussion of the superintendents of the American institutions showed that they had all been convinced of the goodness of the principle that institutions should provide permanent, life-long care for the great majority of the 'feeble-minded'. However, there were some minor disagreements about the 'life-sentencing' of children who had been diagnosed as moral

imbeciles. Walter Fernald, in particular, stated his belief that they should not be sentenced to life imprisonment upon a theory that they may do harm.<sup>66</sup> In his institution he had been compelled to receive cases of moral imbecility committed by a probate court so that a very large number of young women between twenty and thirty who had never committed a crime, had been admitted. He commented:

We have within a year or two noticed the despair that developed when our female patients began to understand that a commitment meant that their chances of discharge were practically gone, and when we must, in effect, say to recently admitted female patients, "it makes no difference how well you behave; you may lead a perfectly straight and commendable life, but you will never be discharged" We have, therefore, begun a different policy. Within the past two years we have discharged perhaps ten or twelve cases who had been with us for five to ten years and cases who, according to our preconceived ideas ought to have gone wrong immediately - either to have illegitimate children or to lead a life of shame. To our surprise none of these girls have gone bad. On the contrary, every one of them has managed to get along.<sup>67</sup>

Fernald also disagreed with Wilmarth over who should decide which inmates were to be discharged. While Wilmarth considered that it should be the medical superintendent's decision, Fernald believed that this was not his proper province and a court should decide. He was at odds too with Wilmarth and Barr over the way in which the institution should be managed. He considered, for example, that it was quite wrong to punish the feeble-minded as their "mistakes" were due to "mental irresponsibility" and that nothing hurt an institution more than to whip an inmate.<sup>68</sup>

Fernald's views were the exception rather than the rule and I would suggest that it was the general failure to consider the rights of those with handicaps by the leaders of the Association which resulted in the initiation of the American eugenics movement, so that the belief held by historians such as Haller that the first stages of this movement (1870-1905) came about solely as the result of hereditarian attitudes is not entirely accurate. As was stated earlier in this chapter, the beliefs about the inheritance of 'idiocy'/'feeble-mindedness' had not changed substantially from the 1840s.

Although no such association for disseminating information and determining how 'idiots' should be treated existed in Britain, Kerlin's, Wilmarth's and Barr's ideas (coupled with the understanding of degeneration in Britain) appear to have played an important part in promoting the idea that all 'incurable idiots' in the population needed to be admitted and retained in institutions.

George Edward Shuttleworth and Fletcher Beach of the Metropolitan Asylums Board had travelled to America in 1876 for the first meeting of the Association of Medical Officers of American Institutions for Idiotic<sup>69</sup> and Feeble-Minded Persons. Here it was impressed on them that all 'idiots' needed special, separate training and all but the very highest grades should remain in

institutions for life. On his return to England, Shuttleworth did not lose contact with his American hosts and was regularly sent the journal of their Association.<sup>70</sup>

Following the making of school attendance compulsory in Britain in 1880, Shuttleworth and Beach both spoke at the Conference on School Hygiene (part of the International Health Exhibition) of the need to remove all backward children from the public elementary schools and place them in 'special' schools, which they<sup>71</sup> believed should be created in every town.

In these special schools the children could be assessed and everyone of them who was found not fit to be returned to an ordinary school could be subsequently admitted to an 'idiot asylum'. Thus a system would be created whereby all the true degenerates in the community could be identified and prevented from reproducing, while those who were not "irretrievably<sup>72</sup> deficient" could be spared the stigma associated with admission to an idiot asylum. Thus the 'idiot asylum' had changed from being a home and school for those in need of this provision (which was how it was perceived by the founders of Earlswood and the institution at Larbert) to an establishment where all 'degenerates' would automatically end up.

Shuttleworth was also able to cite the example of the German "auxiliary" schools as models for the assessment aspect of the new system for complete

provision for 'idiots'.

The idea was not rejected because the lowest classes in elementary schools were overflowing. Francis Warner, at a meeting of the B.M.A. held at Glasgow in 1888, read a paper in the Psychology Section in which he discussed how signs of degeneration could show which children needed the new special education. A resolution was then passed at the meeting stating that a committee should be appointed to investigate the average development and condition of brain function in primary schools. A committee consisting of Shuttleworth, Beach (now the superintendent of Darenth Training School, which he had organized on return from America), Warner and Hack Tuke was appointed.

In 1889 this committee reported on the investigation they had made in fourteen schools; 5334 children had been seen and 809 were examined and the results tabulated. In the same year a Royal Commission on the blind, deaf and other groups requiring special education was held, and Shuttleworth's, Beach's, Warner's and Hack Tuke's evidence was laid before it. The Royal Commission subsequently recommended that county or town councils should provide for educable 'imbeciles' and that they should be separated from 'ordinary' children in public elementary schools. The committee was re-appointed to investigate the number and condition of "feeble-minded, epileptic, deformed and

crippled persons" (in other words degenerates), and in 1891 it reported on this question. The results were put before the Congress of Hygiene and Demography who appointed yet another committee to enquire into the condition of children in schools. Reports by this committee on the defects in development which had been found and recommendations on education and training were published in 1893 and 1895, and in 1896 the Committee became the "Childhood Society" and the investigations continued.

As a result of the many reports a Department of Education Committee (on which Shuttleworth served) was appointed and following several meetings and the examination of medical and other interested witnesses drew up a report in which they estimated that 1% of the school population belonged to the feeble-minded class. They recommended that there should be legislation for the education of 'feeble-minded' children under conditions similar to those provided in a Blind and Deaf Act; that "school authorities should be required to appoint medical officers to advise them as to the discrimination of defective and epileptic children"; and that the Education Department should "consider whether a medical adviser should be appointed, whose duty it should be to advise the Department on all matters arising out of the education of defective and epileptic children and to inspect homes and classes for such children when required."

In 1899 the Elementary Education (Defective and Epileptic Children) Act was passed which incorporated the Departmental Committee's (and Shuttleworth's) <sup>75</sup> recommendations.

The first school to be registered under the new Act was a boarding institution at Sandlebridge in Cheshire. The founder of the school was Mary Dendy, who also founded the Lancashire and Cheshire Society for the Permanent Care of the Feeble-Minded, being strongly committed to the idea which had developed that life-long segregation of degenerates like those with Down's syndrome was always desirable. Dendy operated a highly controlled regime at Sandlebridge with a work programme that was so hard that the children fell straight asleep <sup>76</sup> when they got into bed.

The first full-time school medical officer (in London) following the 1899 Act was Dr. James Kerr who <sup>77</sup> was appointed to the post in 1902. He adopted the current view that 'the degenerates' in the special schools would subsequently require permanent, segregated care and in addition, was a firm supporter of negative eugenics.

Shuttleworth's and Beach's work to greatly increase the number of 'degenerates' admitted to 'idiot' asylums did not cease with the passage of the 1899 Act. They continued to direct campaigns for the ascertainment of all people with mental handicaps in order to bring



them under public supervision so that they could be prevented from reproducing. These campaigns and their consequences will be discussed in the following chapter.

NOTES: CHAPTER SIX

1. A. W. Wilmarth "Mongolian Idiocy", Proceedings of the Association of Medical Officers of American Institutions for Idiotic and Feeble-Minded Persons (1899): 57-61.

2. H. B. Wilbur "The Classifications of Idiocy", Proceedings of the Association of Medical Officers of American Institutions for Idiotic and Feeble-Minded Persons, (1876): 29-35.

Isaac Kerlin played the key role in forming the Association. He used the celebration of the American Revolution Centennial at Philadelphia as his opportunity for suggesting that a meeting of superintendents should take place at the Pennsylvania Training School for discussions of mutual interest.

3. Ibid. pp. 32-33.

4. Ibid. p. 33.

5. Kerlin's belief that people with handicaps were of bad stock is implicit in his publications, for example, I. N. Kerlin "Etiology of Idiocy", Proceedings of the Association of Medical Officers of American Institutions for Idiotic and Feeble-Minded Persons (1880): 150-162.

6. Dugdale's work is discussed by, for example, Peter Tyor and Leland Bell in Caring for the Retarded in America (Westport: Greenwood Press, 1984) pp.54-58.

7. I. N. Kerlin op. cit. note 5 p. 150.

8. Ibid. Table No. 1. pp. 152-161.

9. Ibid. Table No. 2. p. 162.

10. Ibid p. 162.

11. Ibid. Table No. 4.

12. A. W. Wilmarth op. cit. note 1 p. 58.

13. W. F. Bynum "The Nervous Patient in Eighteenth- and Nineteenth Century Britain: The Psychiatric Origins of British Neurology" in The Anatomy of Madness. Essays in the History of Psychiatry Vol. 1 Edited by Bynum et al. (London: Tavistock Publications, 1985) pp.89-102.

14. I. N. Kerlin op. cit. note 5 Table No. 4.

15. A. E. Osborne "Presidential Address at the

Association of Medical Officers of American Institutions for Idiotic and Feeble-minded persons" Proceedings of the Association of Medical officers of American Institutions for Idiotic and Feeble-minded Persons (1894): 395.

16. J. H. Tijo and A. Levan "The Chromosome Number in Man", Hereditas 42 (1956): 1-6.

17. Noted by R. C. Scheerenberger in A History of Mental Retardation (Baltimore: Paul H. Brookes, 1983) p.115.

18. R. H. Shryock The Development of Modern Medicine (Wisconsin: University of Wisconsin Press, 1979) pp.358-9.

19. A. W. Wilmarth op. cit. note 1 p.59.

20. Ibid. p.60.

21. I. N. Kerlin (1877) "The Organization of Establishments for the Idiotic and Imbecile Classes", Proceedings of the Association of Medical Officers of American Institutions for Idiotic and Feeble-Minded Persons (1877): 21.

22. I. N. Kerlin "Our Household Pets", in The History of Mental Retardation, eds. M. Rosen, G. Clark, M. Kivitz, (Baltimore: University Park Press, 1976) p.288.

23. G. Rosen Madness in Society (London: Routledge and Kegan Paul, 1968) pp.288-303.

24. I. N. Kerlin op. cit. note 22.

25. Noted by Scheerenberger op. cit. note 17 p.123.

26. I. N. Kerlin op. cit. note 21. p.21. The early French arguments for marriage restriction are contained in G. Ferrus "Observations upon cretinism, its causes and the probable means of prevention" Archives Générales Février et Mars (1851) p. 231 & 353. In Edinburgh Medical and Surgical Journal 77 (1852) p.485-489.

27. The development of the Wisconsin Eugenics Movement is described in detail by Vecoli in "Sterilization" Wisconsin Magazine of History 43 (1960): 193.

28. I. N. Kerlin op. cit. note 5.

29. Vecoli op. cit. note 27 p. 195.

30. M. W. Barr Mental Defectives, their History, Treatment and Training (Philadelphia: Blackistons, 1904)

p.195.

31. Vecoli op. cit. note 27 pp. 194-199.

32. A. W. Wilmarth op. cit. note 1 p. 57.

33. See for example I. N. Kerlin "Order No. 10. Attendants' Care of Children. Defining the Position of Matrons. The School-teacher - her qualifications and some of her duties", The Manual of Elwyn: in The History of Mental Retardation, eds. M. Rosen, G. Clark & M. Kivitz Vol. 1 (Baltimore: University Park Press, 1976) pp. 313-319.

34. Ibid. p.318.

35. Ibid.

36. Ibid. p.313.

37. M. W. Barr. op. cit. note 30 p.169.

38. I. N. Kerlin op. cit. note 33 p.313

39. Ibid. p.314.

40. M. W. Barr op. cit. note 30 p.172.

41. Kevles discusses this in the context of eugenics, although this does not appear to have been Kerlin's primary motive. See D. Kevles In the Name of Eugenics (London: Pelican books, 1985) p.93.

42. M. W. Barr op. cit. note 30 p.191.

43. Ibid. p.197.

44. I. N. Kerlin "Moral Imbecility", Proceedings of the Association of Medical Officers of American Institutions for Idiotic and Feeble-Minded persons (1889): in The History of Mental Retardation eds. M. Rosen, G. Clark & M. Kivitz Vol 1 (Baltimore: University Park Press, 1976) p. 305

45. In M. W. Barr (1894) "An Inchoative Paranoiac", Proceedings of the Association of Medical Officers of American Institutions for Idiotic and Feeble-Minded Persons (1894): 406-415.

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47. Ibid. p.409.

48. Ibid. p.410.

49. Ibid. p.410.
50. M. Barr op. cit. note 30 p.172.
51. Ibid. p.411.
52. Ibid. p.414.
53. Ibid. p.414.
54. Ibid. p.415.
55. A. Miller For Your Own Good. Hidden Cruelty in Child-Rearing and the Roots of Violence, trans. by Hildegard and Hunter Hannum (London: Virago press, 1983).
56. I. Kraft "Edouard Séguin and the Nineteenth Century Moral Treatment of Idiots", Bulletin of the History of Medicine XXXV (1961): 411.
57. Ibid. p.411.
58. Ibid. p. 414.
59. E. Séguin Idiocy: Its Treatment by the Physiological Method p.228.
60. J. B. Richards "1855 Report of the Pennsylvania Training School for Idiots and Feeble-Minded Children" : in The History of Mental Retardation eds. M. Rosen, G. Clark, M. Kivitz Vol.1 (Baltimore: University Park Press, 1976) p.148.
61. Scheerenberger op. cit. note 17 p.123.
62. I. N. Kerlin op. cit. note 33 p.319.
63. M. W. Barr "Imperative Call of Our Present to Our Future" Journal of Psycho-Asthenics VII (1902): 5-8.
64. A. W. Wilmarth "To Whom May the Term, Feeble-Minded, Be Applied" Journal of Psycho-Asthenics X (1906): 203-207.
65. Ibid. p.206.
66. W. Fernald "Discussion. To Whom May the Term, Feeble-minded Be Applied" Journal of Psycho-Asthenics X (1906): 208.
67. Ibid. p.207.
68. W. Fernald "Discussion. Discipline" Journal of Psycho-Asthenics VII (1902): 38-46.

69. "Obituary, Fletcher Beach." The British Medical Journal ii (1929): 479.

70. On his death his copies of the Proceedings of Medical Officers of American Institutions for Idiotic and Feeble-Minded Persons were sold to the Wellcome Institute for the History of Medicine.

71. G. E. Shuttleworth "Weak-Minded Children" The Journal of Mental Science XXXIV (1888): 80.

72. Ibid. p.81.

73. Ibid. pp.81-83.

74. Described by Fletcher Beach in "The Presidential Address delivered at the 59th Annual Meeting of the Medico-Psychological Association held in London on the 26th July 1900". The Journal of Mental Science XLVI (1900): 623-638.

75. The 1899 Elementary Education (Defective and Epileptic Children) Act, 1899 is reproduced by Herbert Davey in The Law Relating to the Mentally Defective (New York: Dacapo Press, 1981) pp. 345-353.

76. Mary Dendy's views are briefly discussed by David Barker in "How to Curb the Fertility of the Unfit: the feeble-minded in Edwardian Britain" Oxford Review of Education 9 (1983): 206.

77. For some of Kerr's views see G. E. Shuttleworth and W. A. Potts Mentally Deficient Children (London: H. K. Lewis & Co., 1916) pp.219-221.

## CHAPTER SEVEN

### SUTHERLAND'S SYPHILIS HYPOTHESIS

In this chapter I shall discuss the belief of George Alexander Sutherland (1861-1939) that Down's syndrome occurred as a result of the infection of one of the parents with syphilis. The way in which his theory was evaluated by the foremost British contemporary authority on mental deficiency, Arthur Tredgold (1870-1952), will be discussed, and Tredgold's beliefs on how such examples of 'bad', 'immoral' stock should be treated will also be examined. In the second section of the chapter, I shall focus on the experimental testing of this hypothesis in both Britain and America.

#### Sutherland's conception of people with Down's syndrome and its relationship to their treatment in Britain.

Sutherland M.A. M.D. F.R.C.P. C.B.E.<sup>1</sup> was a physician for many years at the Paddington Green Children's Hospital where he took a particular interest in all types of congenital abnormality; as well as certain papers and presentations related to Down's syndrome,<sup>2</sup> he also published on such diverse conditions as congenital stridor of infants,<sup>3</sup> cyclic albuminuria,<sup>4</sup> interstitial nephritis,<sup>5</sup> von Recklinghausen's disease,<sup>6</sup> congenital pyloric stenosis,<sup>7</sup> osteogenesis imperfecta,<sup>8</sup> actonaemic conditions<sup>9</sup> and congenital heart abnormalities.<sup>10</sup> He is also credited with having discovered a particular type of cerebral maldevelopment,

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forebrain aplasia.

His interest in children with diseases and disabilities may, like that of many previous investigators, have been stimulated by "the principle of the least"; as he was the son of the priest (the Rev. James Sutherland D. D. ) he would have been aware of the Scriptural directives to help and be kind to those who were in powerless positions. His attitudes to the sick children he treated do certainly appear to have included a consideration of their needs and rights. For example, he opposed another physician's suggestion that exploratory operations should be carried out on children, whose parents were worrying that they might have appendicitis, in order to put the parents' minds to rest. Sutherland remarked that he "regarded it as an instance of treating the parents instead of the child - a sort of conspiracy against the child's well-being."

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There is no evidence that he had assumed that people with Down's syndrome themselves were immoral and undeserving of help even though (like Howe in America) he had probably reached the conclusion that their parents had sinned.

Sutherland formulated his theory of Down's syndrome in 1899.<sup>13</sup> It differed from the majority of contemporary interpretations of the condition in that it contained the assumption that it was caused prior to conception by a particular disease of the germinal cells of one of the parents.<sup>14</sup>



The theory that congenital disorders including Down's syndrome were caused by an abnormality of the germ cell was not an entirely new one in England; John Langdon Down had proposed in 1887 that "in many cases [of congenital idiocy] the proclivity resided in the germ cell or sperm cell, as the result of gradual degeneration"<sup>15</sup>. This, it may be remembered, had not been suggested by Wilmarth (writing at about the same time), who, although he considered Down's syndrome to be inherited, did not specify a mechanism by which the apparently abnormal, degenerate parental brains could damage the offsprings' constitutions. Sutherland, who was familiar with the American work, discussed Wilmarth's theory that abnormality of the brain was responsible for the characteristics of Down's syndrome under a heading in his article "pathology and morbid anatomy", rather than "etiology". However, he did not discount the possibility that these cerebral differences might be responsible for the symptoms of the condition, and wrote:

Whether a congenital defect in the basal structures of the brain would produce this type of imbecility it is impossible to say, but probably there is also some change in the higher centres which is not so manifest and which has not yet been discovered. But such a condition of the basal structures does explain certain of these physical changes on which stress has been laid, and which are characteristic of Mongolism as the mental symptoms. Just as in microcephalus deficient expansion of the cranial vault is believed to follow from imperfect development of the cerebral lobes, so in Mongolism deficient expansion of the base of the skull would follow imperfect development of the basal structures of the brain. The marked facial

peculiarities, to which reference has been made, would also be explained on this assumption. One can understand the depression of the face, most marked in the nasal region; the diminution in the capacity of the nostrils, naso-pharynx, pharynx, and mouth; the obliquity of the orbits from limitation of growth in mid line, but unchecked expansion of the cranial vault upwards; the tendency to protude the lower jaw beyond the upper, growth being restricted in the latter while unimpaired in the former; and the grimacing face from the altered shape of the facial bones and, therefore, an altered action of the muscles attached to them.<sup>16</sup>

Sutherland was unhappy with Wilmarth's association between neurotic heredity and Down's syndrome because he considered that "general causes such as parental alcoholism, nervous disease or insanity in the family, are not likely to produce such an exact type of disease as exists in mongolism."<sup>17</sup> Like Down, he believed that a specific cause must also be operating, but he considered this to be syphilis, not tuberculosis. A causal relationship between syphilis and mental disorder had been proposed by Esmarch and Jessen in 1857, the year in which Morel published his degeneration hypothesis, and was a way of explaining specific observations of degeneration, like that of 'insane' parents (those with general paralysis) being likely to produce 'idiots' (those with congenital syphilis); and which also provided a physical basis for such observations, in the degenerative changes in the parental cerebral tissues (observed as early as 1838 in general paralysis by Pachappe, one of the Paris School of clinical pathologists) which were considered by some (eg. Dugdale and Kerlin) to mean inevitable brain abnormality in any

offspring.

A relationship was also believed to exist between syphilis and tuberculosis, so that Sutherland's consideration of the possibility that syphilis was the cause of Down's syndrome probably had an association with Down's observations that tuberculosis frequently occurred in people with Down's syndrome. The physician, Edward Smith of the Brompton Hospital had, in 1862, linked tuberculosis and syphilis through his observations that syphilis was common among the parents of scrofulous children (this was not an entirely new association as George Meredith had already blamed a syphilitic father for a consumptive daughter in The Ordeal of Richard Feverel in 1859). In 1882, Dr. T. Henry Green of Brompton announced his discovery of a third 'distinctly syphilitic' type of phthisis, to be set beside 'chronic basic pneumonia phthisis' and the inflammatory disorganisation of lung phthisis.<sup>18</sup>

Sutherland's theory was not, however, simply based on these earlier associations; he claimed to have good evidence of the causal relationship between syphilis and Down's syndrome. He stated that he had found hereditary syphilis in eleven out of twenty five cases of Down's syndrome and to suspect it in three more of these cases.<sup>19</sup> When he reported this no simple biochemical means of determining whether an individual had been infected with syphilis existed (a method had been developed for 'paretics'; Krafft-Ebing, in 1897,

inoculated nine paretics with luteic material and as none of them developed secondary symptoms the inference<sup>20</sup> was drawn that they had previously been infected). Diagnosis of congenital syphilis had to rest on the presence of stigmata of the condition for example the characteristic appearance of the teeth, which had first been described nearly forty years earlier by Jonathan<sup>21</sup> Hutchinson.

Sutherland, however, did not state how he determined that "syphilis was definitely present"<sup>22</sup> in certain of his cases: he did not relate in what percentage of the children he had diagnosed syphilis in the parents, nor does he say what criteria he used to determine that a person with Down's syndrome had inherited syphilis. There was, however, a reason for this latter omission by Sutherland: the presence of the stigmata of congenital syphilis was not necessary for the diagnosis of a parasyphilitic condition, which was simply characterized by delayed mental and physical development and early death. (The concept of a parasyphilitic condition had been formulated by Alfred<sup>23</sup> Fournier in 1894 in his work Les Affections Parasyphilitiques).

Down's syndrome was not the only condition which Sutherland considered to be a parasyphilitic condition. He also suggested that the "sole cause of interstitial<sup>24</sup> nephritis in children was the syphilitic poison" and

his reasoning was largely based on his view of the affected kidneys as arrested or imperfect in development.

Sutherland was not alone, at this time, in his belief in the widespread incidence of syphilis. Indeed, the poor physique and frequent occurrence of diseases in the recruits for the Boer War (1899-1902) were also ascribed to their infection with syphilis. This disease appears to have been used by certain of the middle-<sup>25</sup> classes to blame these people for their state of health and therefore avoid the uncomfortable possibility that their exploitation and the consequent appalling living conditions which they were forced to exist in might be destroying them. Jones<sup>26</sup> has shown, too, that in America at the time, similar arguments were being concocted by white Americans to explain the decline in black health since the abolition of slavery. A proclivity to sexual vices was just one of the self-destructive traits which was considered responsible for the debilitation of the black race. He appears to regard this contemporary tendency to consider the diseased as responsible for their own condition as related to a combination of the physicians' acceptance of Social Darwinism, and poor race relations. However, as this thesis has demonstrated, the concept of self-destructive behaviour leading to physical degeneration was well established in the first half of the nineteenth century by those physicians who were attempting to help those

whose moral standards were perceived as poor.

Unsurprisingly, Sutherland gave his patients with Down's syndrome the usual anti-syphilitic treatment at the time, mercury.<sup>27</sup> While this unpleasant treatment appears to have had some beneficial effect in cases where congenital syphilis was combined with Down's syndrome, it, of course, produced no changes in the mental and physical characteristics associated with the syndrome. For the treatment of these characteristics Sutherland tried various 'gland preparations'.<sup>28</sup> This was because he was fully aware of the recent benefits which had been achieved by the administration of thyroid gland in 'cretinism', a condition which, he had observed, had a number of similarities with 'Mongolism'. He, in fact, wrote:

In both the physical and mental development is delayed, the vital powers are low, the temperature is subnormal, and sensitiveness to cold is a marked feature. In both occur the following facial alterations-viz, depressed bridge of the nose, small palpebral fissure, and protruding tongue. In both the abdomen is large, an umbilical hernia is often present, and there is a marked tendency to constipation. In both the fontanelle is late in closing and the teeth are late in appearing, are poorly developed and decay rapidly. In both speech is much delayed and is replaced by peculiar, grunting, animal-like noises, while snoring during sleep is very pronounced. In both there is muscular debility without any definite paralysis.<sup>29</sup>

However, he was not able to produce any of the beneficial changes which had occurred in 'cretins' through the administration of thyroid gland (he observed only a loss in weight and a rise in temperature), and had no better results when he gave thymus gland

<sup>30</sup>  
tabloids. Therefore, the only advice that he could offer was to give treatment which was general and symptomatic.

Sutherland's concept of Down's syndrome was quite influential in England in the first years of the twentieth century. His was the only aetiological theory, in fact, which Arthur Tredgold referred to in the section on 'Mongolism' in his text-book, Mental  
Deficiency<sup>31</sup> (published in 1908) and Katherine Jones considers that Tredgold's work "had an immense influence  
as teaching material on the development of the field."<sup>32</sup>  
Tredgold described Sutherland's paper as "one of the  
best accounts we have of Mongolism,"<sup>33</sup> and considered that the evidence he produced for the involvement of syphilis in the condition was "undoubtedly very  
strong."<sup>34</sup> Probably influenced by Sutherland's approach to the study of the subject, Tredgold examined the family history of his own patients with Down's syndrome and although he was unable to find syphilis in the parents, he claimed to have been able to observe both a  
"neuropathic family history" and "frequently, a strong  
tubercular taint."<sup>35</sup>

The presence of a neuropathic family history was integral to the degeneration concept which continued to be resorted to as explanation for the occurrence of congenital mental handicap. Tredgold postulated that chronic alcoholism, tuberculosis, syphilis and the

stress of modern living were all capable of producing germinal impairment and therefore a psychopathic diathesis, which reached its culmination in such forms<sup>36</sup> of amentia as 'mongolism'.

Thus, Tredgold included Mongolism in the 'primary amentia' (hereditary conditions) section of his book. The finding, however, that the patients with Down's syndrome were often last born was not entirely consistent with his perception of the occurrence of such conditions, and he therefore tried to reconcile this observation with his general theory by constructing a model of causation which entailed the operation of two<sup>37</sup> factors, "morbid heredity and uterine exhaustion". The uterine exhaustion, he believed, in some cases was brought about by syphilis.

Tredgold's perception of primary amentia (in part a product of the degeneration paradigm, and in part a consequence of the campaigns leading to the 1899 Elementary Education (Defective and Epileptic Children) Act) was intimately related to his recommendations to a Royal Commission to which he had been appointed as<sup>38</sup> medical expert.

This Royal Commission had been set up in 1904 to consider the case of the more severely handicapped children who were excluded from the special schools. Also associated with this commission were Shuttleworth and Beach through their work for the National Association for the Care of the Feeble-minded.



Shuttleworth was vice-chairman and Beach was consultant  
39  
to the Association.

Katherine Jones, I believe, is incorrect in assuming that the setting up of this Royal Commission was a consequence of a new pessimistic perception of 'defectives'. She writes:

At this point a new factor entered the situation - the views of what became known as the 'eugenic school'. To those who worked in the field of mental deficiency, the fast-growing science of genetics brought new and alarming evidence. The old, easy optimism - the belief that almost all defectives could be cured, given time and patience had vanished. In its place grew a profound pessimism, a conviction that mental deficiency was hereditary, unsusceptible to treatment and training, and a growing danger to the whole of society. Life-long segregation, and a public policy of sterilisation of the mentally unfit were seen as the only useful principles for action.<sup>40</sup>

I consider that the establishment of the Royal Commission is more accurately perceived as a simple continuation of the campaigns leading to the 1899 Act, and not a consequence of a new "eugenic school" or the development of "the fast growing science of genetics". 'Cretinism' and 'idiocy' had always been considered to be hereditary, and as was noted in the previous chapter, the concepts of segregation, curtailment of civil rights and marriage restriction had originated in France with the earliest attempts to train the 'cretin' and the 'idiot'. By the late nineteenth century such concepts had already begun to be put into practice in both America and Britain, and were closely linked to other severe restrictions on the behaviour of 'degenerates'

which occurred through harsher training methods. In addition as has already been previously discussed, it simply was not the case that it had ever been believed that almost all defectives could be cured. Indeed many of the patients at Park House had been perceived as 'degenerate' and some were considered to have been only capable of very limited improvement, but the primary aim at this institution was most definitely to help them and not to segregate them from society.

Tredgold's belief in the hereditary nature of congenital idiocy coupled with a failure to consider the rights of defectives and their families led him to believe that not only should they unquestionably be prevented from propagating, but their unaffected, yet 'tainted', brothers and sisters should also be prohibited from marriage unless a suitable partner could be found with whom a union would lead to the offspring having taken a step in the upward rather than the  
41  
downward direction.

As a means of preventing reproduction of the 'aments', he considered that asexualisation, which had by now been performed on hundreds of patients in America, to be "repugnant to English feeling" and believed that it could never take the place of segregation. He also argued for the passing of similar marriage restriction laws to those which existed in  
42  
America.

He considered that it would generally be necessary

to detain compulsorily the degenerates in "suitable colonies or institutions" so that society would be protected from the "special peculiarities of the ament". Simple sterilisation would not afford society this protection.<sup>43</sup> In formulating this negative perception of the person with handicaps he had probably been influenced by Shuttleworth, Beach and Martin Barr.

Shuttleworth argued that there was not only a close correlation between mental degeneracy and physical degeneracy, but also between physical defects and moral defects. Compulsory detention would not only protect society, but would also restrict the marriage of the unfit; a measure he considered to be of prime importance<sup>44</sup> in preventing degeneracy.

Martin Barr had reported to the section of the Royal Commission which visited America, and had discussed the nature of the 'feeble-minded' children under his charge at Elwyn. He wrote on this subject:

Many of the children are absolute criminals. Some are the victims of circumstances, but the absolute bad children we cannot do anything with. We have fifty to seventy-five of them. I think our Government should take up the question of these children. I should have these form a national colony on the bad lands of the West, to be taken care of under military discipline.<sup>45</sup>

The Royal Commission was strongly influenced by these men and recommended that all mental defectives should be ascertained and brought into contact with public supervision. A central authority should be set up responsible for ascertainment, and certification of

defectives should take place without the intervention of  
a judicial authority.<sup>46</sup>

The campaign to make the recommendations law was largely undertaken by the National Association for the Care of the Feeble-minded (Tredgold was also a consulting physician to this organisation), which collaborated with the Eugenics Education Society in writing letters etc. to the candidates in the following  
general election.<sup>47</sup>

In 1912 two Bills were introduced by the Eugenics Education Society and the National Association. However, they were not successful because of the opposition from those who believed that the Bill infringed individual liberty. The M.P. Josiah Wedgwood, for example, argued:

The backbone of this Bill is the abolition of the (voluntary) homes and the substitution for them of asylums, where there are bolts and bars, where people are locked up at night, where people may not go in to visit their friends, where they will be hunted like runaway slaves if they escape and brought back by any constable or servant of the asylum...If you put on bolts and bars, you will not only arouse suspicion, but you will get far more brusque treatment, possibly brutal treatment of the inmates.<sup>48</sup>

However, in 1913, the two societies had more luck, as in spite of continued opposition, the Mental Deficiency Act of 1913 was passed which largely incorporated the recommendations of the Royal Commission.

Tredgold was generally satisfied with the provisions of the Act commenting that it would "do much to minimize the evils which have resulted from the

neglect to afford adequate supervision in the past,"<sup>49</sup>  
and that it marked "a distinct step in the right  
direction."<sup>50</sup> However, he was very disappointed that a  
clause had been omitted which empowered the detention of  
those "in whose case it is desirable that they should be  
deprived of the opportunity of procreating children."<sup>51</sup>  
The Act allowed these people to remain outside  
institutions providing that they were placed under  
statutory guardianship.

Tredgold perceived the omission of this clause as  
folly commenting:

It is the experience of all who have had to do  
with aments that they are not only safer and more  
useful, but also much happier in a suitable institution  
affording the companionship of their compeers.<sup>52</sup>

He also regarded it as quite "deplorable" that  
another clause had been left out; that which made it a  
misdemeanour for any "person to intermarry with, or to  
solemnize or procure or connive at the marriage of, a  
defective within the meaning of the Act."<sup>53</sup> Tredgold had  
hoped that all people who were germinally tainted (even  
latently) would be prevented from reproducing and "could  
see no reason why their marriages should not be  
forbidden by law."<sup>54</sup> He therefore called for the setting  
up of a national system of family records as a prelude  
to (and in order to secure) future legislation  
preventing the marriage of those with disease,  
degeneracy, criminality or paupers in their genealogical  
tree.<sup>55</sup>

The major immediate effect of the 1913 Mental Deficiency Act was to increase the number of defectives admitted to 'idiot asylums'. At the beginning of 1914 there were 2,163 people in institutions for idiots and by the end of the year 796 more 'defectives' had been admitted.<sup>56</sup>

Human experimentation: a consequence of Sutherland's 1899 theory for the treatment of people with Down's syndrome.

Sutherland's suggestion that syphilis could be the cause of Down's syndrome continued to receive consideration largely because new means had been developed of testing its validity. With the creation of the conceptual and technical bases of biochemistry, scientists had begun to study the immunological properties of blood and other body fluids. As early as 1890, Quincke had shown that cerebro-spinal fluid could be obtained by direct lumbar puncture; ten years later Ravault, Widal and Sicard found that lymphocytosis occurred in the cerebral-spinal fluid of people with syphilis; the following year Achard, Loefer and Lanbry discovered that considerable quantities of protein were to be found in individuals with the disease; in 1906, Wassermann developed the complement fixation test; and in 1911, Lange introduced the colloidal gold test (Zsigmondy had been working exhaustively with solutions

of colloidal gold and his investigations eventually led him to recognize their potential as a means of quantitatively estimating proteins. The gold in such solutions is precipitated by electrolytes- but if protein is also added the point when precipitation occurs is altered. Lange had found that if spinal fluid contained an abnormal amount of protein because the individual had syphilis then the precipitation occurred at a certain dilution point<sup>57</sup>).

In 1915, H. C. Stevens, a researcher from the Psychopathic Laboratory of the University of Chicago, used a large extract from Sutherland's paper<sup>58</sup> as justification for carrying out some of these new tests on people with Down's syndrome to see whether they had been infected with syphilis. However, he had no evidence that the spirochaete responsible for syphilis (discovered by Schaudinn and Hoffmann in 1905) could affect the parental germ cells in any way.

The serologic tests which Stevens carried out were quite unpleasant and not without risk. Blood was taken by syringe from the arm and spinal fluid was obtained by lumbar puncture from a number of people with Down's syndrome, who were drawn from the Lincoln State School and Colony and the Minnesota School and Colony. The ages of these subjects ranged from two and a half years to adult. Certainly the lumbar puncture is a particularly distressing procedure for children; not only is it very

uncomfortable, but the fact that a needle is inserted into the back part of his body, which the child cannot see and, of course, cannot control, makes the whole intervention one which is likely to engender intense anxiety and shame.<sup>59</sup>

While it is obvious what the aim of the investigations was: to test whether Down's syndrome was caused by syphilis in either of the parents, there was no mention of how it was believed that the subjects could benefit if syphilis were found to be the cause. Although, at this time, salvarsan, as well as mercury, was available for the treatment of infants with congenital syphilis, this new substance, like mercury, had been found to be ineffective in Down's syndrome.<sup>60</sup>

In fact, the reason for examining whether syphilis was the cause of Down's syndrome was clearly linked with the wish to prevent the occurrence of the condition in future generations. This was plainly stated in a report on some similar tests performed the previous year on six hundred 'feeble-minded' children at one of the institutions where Stevens carried out his tests, the Minnesota School for the Feeble-minded and Epileptics:

The work undertaken at this institution in testing our children for evidence of syphilis by means of the Wassermann reaction...has been undertaken as part of the work outlined by this association [the American Association for the Study of the Feeble-minded] leading towards a more accurate and comprehensive knowledge of the factors which enter into the causation of feeble-mindedness.<sup>61</sup>

This institution was also where Stevens carried



out a second series of tests on people with Down's  
62  
syndrome.

In view of the purpose of the investigations informed consent to them by the subjects would obviously  
63  
have been desirable. This, of course, was highly problematic in the case of mentally handicapped children. In Stevens' second paper on the results obtained from the Minnesota School, he makes it clear from whom he had received permission:

Through the kind cooperation of the officials of the Minnesota State School for the Feeble-minded, at Faribault, Minnesota, it has been possible for me to examine the blood serum and spinal fluid of eighteen additional Mongolian idiots.<sup>64</sup>

The parents of the children were not consulted. The Medical Superintendent, as well as acting as the children's physician, was also the principle of the school and therefore acting 'in loco parentis'. At the Minnesota school the 'real' parents' power, which clearly would act as a check on that of the Superintendent, was kept at a minimum. Rogers insisted that the parents give him freedom to treat their children as he thought fit and this included 'whipping' them himself. He wrote on the subject of parental involvement:

The only real trouble I ever had over severe discipline was when I whipped a boy and neglected to inform his parents. The boy informed the parents himself. I believe I did the proper thing for the boy, but I should have told them. He was a great strong boy physically, and had simply domineered over his associates-farm boys-and his attendants, who were forbidden by me to punish him, until the limit of forbearance was reached. His mother insisted upon taking

him home, I said that I should like to have the boy taken before the board of trustees and let them see what had been done and hear the reason and that if she cared to take him home it was all right. This was done and the boy went home. A week later I had a letter in which she said she would like to return him under certain conditions. I replied that he could not be returned under any conditions except to be treated as I thought best. Within a month she sent him back under my conditions and he has been a splendid boy ever since. This is a typical case where I believe punishment was required. He came from a home where there was no control. In fact, I understand he pounded his mother during the time she had him home after my punishment and I presume this treatment was a powerful argument with her in my favor.<sup>65</sup>

In this case Rogers appears to have caused real injury to the boy concerned (as judged by there being anything for the board of trustees to look at). With an 'uncheckable' right to treat the children as he 'thought best', it is unsurprising that consent for the lumbar-punctures should not have been sought from the parents, or, indeed, from those children who were capable of understanding.

It appears that Rogers would, however, have received support, rather than censure, from the majority of his colleagues for his consent to the tests. As was discussed in the previous chapter, the rights of the 'feeble-minded' had gradually been eroded as compulsory life-segregation and sterilization became common-place. By 1916, when Stevens conducted his tests on people with Down's syndrome, eight states had laws which authorized or required surgical sterilization of certain classes of "defectives and degenerates", and in six of these, "idiots, imbeciles and the feeble-minded" were

specifically mentioned as people whom these operations could be performed on.<sup>66</sup> Sterilization in these states did not always mean simple vasectomy (excision of a portion of the vas deferens) or salpingectomy (excision of a small portion or the whole of the fallopian tubes); Barr and similar-minded physicians had been successful in promoting the more drastic and harmful operations of castration or ovariectomy (removal of the ovaries). In addition, even more risky surgical practices were sometimes carried out and Rogers, himself, in fact, had spoken out<sup>67</sup> some years earlier against operations in which large parts of the brain were removed because they were believed to be diseased, or portions of the skull were cut out if the sutures were believed to have united before before the brain had obtained its normal size. Although these operations, not surprisingly, resulted in the death of very many of the subjects, they were still carried out because some very unscrupulous surgeons were making large sums of money out of them. Rogers wrote:

In many [cases] death has followed the operation, which was perhaps not altogether to be regretted. But such a method of relieving the community, and at the same time depriving these unfortunates of a life nearly or altogether aimless, is not in accordance with the higher instincts of our nature.<sup>68</sup>

The actual killing of the 'feeble-minded' was also discussed in the early twentieth century; in the 1916 edition of the Journal of Psycho-Asthenics (edited by Rogers) an article by the American Breeders' Association listed euthanasia of 'defective individuals' as a remedy

for the apparent increase in their numbers, and only rejected it because it was "against the moral convictions of our day",<sup>69</sup> with the implication that the time for it might come - as it did, of course, in Nazi Germany, twenty years later.

The acceptance of the legitimacy of sometimes hurting the individual 'feeble-minded' person if it were in the interests of society as a whole, was accompanied by a reluctance to provide adequate funding for the institutions in which he was held. Some superintendents tried to operate at no cost to the state by making the inmates entirely self-supporting. This goal of self-support has been shown to have resulted in the overworking of the people to meet production quotas and the reduction of education, diet and medical care to a minimum.<sup>70</sup> Self-support was attempted at both the Lincoln and Minnesota Schools by a colony system, which consisted of a training school as well as an industrial,<sup>71</sup> custodial and farm department. Dr. Leonard, the Superintendent of the Lincoln State School and Colony (the largest institution in the state) suggested, however, that there were other benefits to the colony system. He wrote:

We are trying to maintain a colony. The object is two-fold, first to direct the public of the state of Illinois in this work, that is to have them interested in what we think is a menace to the state, more so probably than the insane, and incidentally to allow social workers to come to Lincoln and learn this from the material that we have at hand.<sup>72</sup>

Leonard's negative attitudes to the inmates in his

care may, in part, also have been a consequence of the commitment law which had recently come into operation on Illinois.<sup>73</sup> This was the only American state at the time which operated exclusively by commitment law in caring for the feeble-minded. The main practical effects of the law seems to have been an increase in the number of admissions (between 1915 and 1918 the population of Lincoln State School increased by 595 inmates) and the commitment of a number of delinquent children who were admitted under certain sections of the Act. As a result of these changes the composition of the Lincoln State School rapidly changed so that there was a smaller proportion of the most severely handicapped and a larger proportion of the least. Leonard deplored the admission of "feeble-minded criminals" whom he stated "fit in very poorly with the feeble-minded". He estimated that about 10% of the population of the Lincoln State School (1,705 in 1915) consisted of individuals who had "delinquent<sup>74</sup> reactions...more marked than mental deficiency".

Those people whom he considered had been wrongly admitted he attempted to discharge (between 1915 and 1918, Leonard, in fact, discharged 327 inmates). Sometimes, however, he found that the family would not accept the person back. He writes, for example, about one case:

I have a boy at the present time that we discharged from the institution. He grades about twelve years. He was sent home because he was not feeble-minded. The people at home wouldn't keep him. The court

then sent him back to Lincoln. The law says they are not capable of taking care of themselves. This boy is capable of taking care of himself and could be trusted to take care of himself.<sup>75</sup>

The use of mental-age to distinguish between the normal and feeble-minded persons had been in operation since 1908. The 1906 Binet-Simon Scale (this consisted of ten tests each about two minutes long requiring the naming of designated objects, comparison of lengths of lines, repetition of digits, completion of sentences, and comprehension of question; the tasks being chosen on how well they discriminated among children varying in age from three to twelve) had been revised then so that the tests were grouped according to the age at which they were most commonly passed - mental age being assigned to the child to represent that age level at which not more than one test had been failed. Goddard's translation of the Binet-Simon Scale into English in 1910 introduced the test to America and Terman's 1916 revision popularized the procedure. Leonard, however, suggested that it would be useful to class all inmates with a mental age above twelve as insane rather than normal. He probably put forward this suggestion because its implementation would avoid the problem of 'intelligent delinquents', whom the parents did not want at home, remaining at Lincoln. The possibility would obviously then exist of sending troublemakers to insane asylums.<sup>76</sup>

The main purpose of the law had been simply to

institutionalize the unsupervised 'feeble-minded' who were all considered to be "unsafe and dangerous to the welfare of the community", and little care had therefore been taken to ensure that they were being sent to an appropriate place which could cope with them. Nor was the committed person given any legal rights to education or treatment.

In keeping with the spirit of this law and the general perception of people with handicaps at the time, Leonard specifically modelled the colony at Lincoln on that of another superintendent, Dr. Johnson,<sup>77</sup> and an examination of Johnson's perception of the inmates reveals why Leonard would have believed that he was doing nothing wrong in divesting himself of his responsibilities as a physician and special educator. Johnson had written:

We must dismiss from our minds and from our vocabularies the thoughts and words which seem to imply that the healthy, trained, adult imbecile is a patient, or a pupil, or a prisoner. He is neither, but he is a laborer, either a skilled mechanic, or an unskilled worker, and usually of the commonest class. He does not need sumptuous appointments nor do they make him happy. He is happiest when he lives with his feet near the ground. A plain building suits him better than a palace. A log hut should be his ideal. He does not need constant medical care, nor high priced tuition, nor hospital buildings, nor detention within iron bars. He needs outdoor or indoor work and plenty of it, outdoor preferred. He needs plain food and the simplest and plainest clothing.<sup>78</sup>

Johnson, too, was quite prepared to have inmates whipped or to inflict other humiliating punishments to ensure that his system worked, for example, he wrote:

We say to a boy that he has proved by his conduct

that he is not in the right place for him; that he belongs in division "Six" and so in he goes. If I want to be very forcible I have his clothes marked "6".79

However, when Leonard was asked by Stevens for permission to test Sutherland's causation hypothesis on people with Down's syndrome, Leonard probably did believe that a group of people with Down's syndrome had never been examined for the presence of a syphilitic infection in this way before. This was actually not the case. In England four hundred 'feeble-minded' people (over one hundred of these were less than ten years old) had been blood tested for syphilis<sup>80</sup> using a recent developed chemical test and eight people with Down's syndrome were included within the trial (although in this investigation the researcher does not refer to Sutherland's hypothesis as justification for testing them).

Dr. J. Leslie Gordon who conducted these tests was an assistant medical officer at the Caterham asylum, which was one of the asylums of the Metropolitan Asylum Board. All the subjects came from these particular asylums which catered only for paupers and this probably made them especially vulnerable to such compulsory tests; they were a burden to the state, in contrast to a patient in a private institution, who could be withdrawn (along with the fees) by a relative if they did not like him receiving treatment which would not benefit him. Gordon, himself, wrote on the subject of the therapy for the mental deficient with syphilis:



Antisymphilitic treatment of individuals suffering from congenital mental deficiency is not likely to be attended with any very hopeful results unless commenced at a very early age.<sup>81</sup>

The aim of Gordon's investigations was to demonstrate the need for the measures to control venereal disease, which, if adopted, he considered would lead to a diminution of the incidence of 'idiocy'. He did not believe, however, that any such measures would lead to a reduction in the number of cases of Down's syndrome as all the people with Down's syndrome, whom he tested, had negative results, so that he concluded that there was no relationship between Down's syndrome and syphilis.

Stevens appears to have paid little attention to the other theories of Down's syndrome because of the continuing association between immorality and 'mental deficiency'. At the time it was popularly believed that people who contracted syphilis were immoral (as the parents of people with Down's syndrome were suspected of being) and therefore that they must in some respect be mentally abnormal. This is well illustrated by a case-study published in a contemporary issue of the Journal of Psycho-Asthenics.<sup>82</sup> This described the characteristics and life history of a young woman, who had contracted syphilis and because of the relationship between immorality and mental abnormality had consequently been admitted in 1914 to an insane asylum in Kankanee for treatment. The physician, Dr. S. N.

Clark, who made the study of the woman, was a member of staff of the same institute as Stevens, the State Psychopathic Institute in Chicago.

Clark wished to demonstrate that a person could be mentally abnormal even though they scored well on formal tests. The woman in his study did extremely well on the Binet-Simon intelligence scale although Clark believed that it was worth recording that "in naming the wars in which the United States had been engaged she left out the wars of 1776 and 1812. She believed Lincoln was the president during the Civil War but was not sure she was correct. She did not know the names of the Senators from Illinois, nor the name of the governor of Illinois or Missouri,...She named only four of the countries in the European war and did not know which ones were allied."<sup>83</sup>

However, Clark believed that more important evidence of her defectiveness was provided by her answers to personal questions, which he believed "showed a decided lack of grasp. She was asked to enumerate the qualities she would like her husband to possess and the qualities named were "unselfish", "thoughtful of me", and not to like other women. When asked what she would want a son to be and told to think of him at 10, 20, 30 and 40 years respectively she gave the following: "finely educated", "blond", "charitable", "loving and kind hearted", "generous". Although pressed to do so she<sup>84</sup> could think of no more qualities."

He also considered that her choice to live life in the present, to be interested only "in matters of immediate rapport"<sup>85</sup> rather than future ends"<sup>86</sup> showed that an "intellectual defect"<sup>87</sup> was present.

He had other information of her degeneracy from her family history, too: "the maternal grandfather died at sixty years from a "paralytic stroke". The maternal grandmother died at about sixty from "apoplexy"."<sup>88</sup>

Clark's argument for her abnormality rested largely on her statements of what were generally Christian norms and values (she had become very religious in her late teens)<sup>89</sup> which were plainly quite different from those of his own philosophy of life.

The implication of Clark's study was that although a person appeared to be intelligent their immoral behaviour and beliefs showed that they were degenerate.<sup>90</sup> He recommended that she should not be discharged from the asylum as "freedom would precipitate the same actions as took place before she was sent to the institution."<sup>91</sup> It is not, however, stated whether or not she was subsequently compulsorily sterilized (sterilization appears to have been sometimes used as a condition of discharge) to prevent the possible birth of a child who had degenerated further than its mother.

While it is obvious how the child with Down's syndrome could have fitted into this degeneracy/syphilitic framework, it is much harder to understand how Stevens managed to gain positive

biochemical test results for the people with Down's syndrome whom he investigated, so that he was able to conclude that the "serologic tests prove beyond question that this condition is a result of syphilitic infection."<sup>92</sup> I shall therefore now examine the tests themselves.

Stevens carried out four tests on the spinal fluid in 1915: a cell count, an evaluation of the globulin content, the Wassermann reaction and the Lange Gold Chlorid test. He found that the globulin content was increased, and colour changes of the gold chlorid in the luetic zone in 90% of the cases. These are typical results in cases of congenital syphilis. However, he found the Wassermann reaction positive in only two of the cases (out of twenty) on the blood serum and in five<sup>93</sup> of them on the spinal fluid. Pleocytosis occurred in only four of the cases.

<sup>94</sup>  
Contemporary investigations suggested that if the people with Down's syndrome did have a form of congenital syphilis the Wassermann reaction would have been positive in all the cases. Nevertheless, the results appeared to be sufficiently suggestive of a relationship between syphilis and Down's syndrome for Stevens to repeat the tests with a second group of people with Down's syndrome (at the Minnesota School). Stevens obtained similar results, only this time the gold chlorid reaction appeared to be present and the

globulin content increased in all the cases, but the Wassermann reaction was only positive in six (out of eighteen cases) on the blood serum and in two of the cases on the spinal fluid. Pleocytosis was found in none<sup>95</sup> of the cases.

On the basis of these findings Stevens believed that he had shown that syphilis was the cause of Down's syndrome. He wrote:

The tests seem to demonstrate beyond question that this condition is a result of syphilitic infection.<sup>96</sup>

However, he had made no attempt at all to explain the discrepancies in his findings.

In addition, he speculated about the mechanism by which the syphilis could have caused the 'Mongolian syndrome'. He considered that the syphilis probably acted on endocrine organs because of certain findings about sugar tolerance and calcium retention in people with the syndrome. He suggested that the pituitary body might be particularly affected by the syphilis because of the dwarfing of the body in Down's syndrome, and urged that histological studies be undertaken. He did not, however, draw any anthropological conclusions from his theory. In the next chapter I shall discuss how certain English investigators considered that the endocrinology of the person with Down's syndrome could<sup>97</sup> throw light on that of the Mongolian race.

Shortly after their publication, Stevens' results and conclusions not surprisingly began to be closely

examined. Two Cleveland physicians, J. McClelland and H.  
Ruh<sup>98</sup> not only questioned the inconsistencies of his  
results, but queried his definition of a positive  
result. They pointed out that the Wassermann reactions  
should have been repeated, particularly as the majority  
of these results had barely given a positive reaction  
and they showed that the colloid gold chlorid reactions  
had not been entirely correctly interpreted. (These are  
very sensitive reactions so that an apparently 'just  
positive' result can be obtained in people without  
syphilis. Therefore, great care has to be taken in  
determining the reaction point when an individual can be  
considered to have the infection).

Although they believed that they had shown that a  
"simple analysis of Stevens' reports" demonstrated that  
"the evidence does not seem to justify the  
conclusion",<sup>99</sup> they repeated the tests on yet another  
group of people with Down's syndrome, who were mainly  
drawn from the Babies' Dispensary and Hospital and the  
Cleveland City Hospital. Again, neither the question of  
the problem of consent, nor the possible treatment which  
could be given to help the subjects was discussed.

McClelland and Ruh, however, paid much attention  
to the more technical aspects of the investigation; they  
were careful to ensure that the people selected did  
actually have Down's syndrome (only people with the most  
typical characteristics were included), and that the  
tests were correctly prepared.

The results they obtained were virtually all negative (the Wassermann and colloidal gold tests were negative in every instance), so that they were able to conclude that "it cannot be stated at the present time that mongolism is due to congenital syphilis."<sup>100</sup>

### Conclusion

A relationship between immorality/criminality (in the parents of people with Down's syndrome and/or people with Down's syndrome themselves) and physical and mental abnormality had been developed in Britain (partly through American influences) by the end of the nineteenth century. The conception of Down's syndrome as a parasyphilic condition; Tredgold's belief in the need to confine people with handicaps in institutions; and the idea that the authorities had the right to authorize unpleasant experiments on people with Down's syndrome who were dependent on the State, were all reflections, in part at least of these associations.

#### CHAPTER SEVEN: NOTES

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2. G. A. Sutherland "Mongolian Imbecility in Infants", Practitioner 63 (1899): 632. G. A. Sutherland "The Differential Diagnosis of Mongolism and Cretinism in Infants", Lancet i (1900): 23. G. A. Sutherland "Presentation of a Japanese infant", British Medical Journal i (1905): 1207. G. A. Sutherland "Presentation and comments about four cases of Mongolian imbecility", British Medical Journal i (1909): 1121.
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12. G. A. Sutherland "Discussion" British Medical Journal i (1928): 349.
13. G. A. Sutherland "Mongolian Imbecility in Infants" op. cit. note 2.
14. Ibid. p.640.



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16. G. A. Sutherland "Mongolian Imbecility in Infants" op. cit. note 2 p.640.
17. Ibid. p.640.
18. For a more detailed discussion of the relationship between syphilis and tuberculosis see F. B. Smith The Retreat of Tuberculosis 1850-1950 (London: Croom Helm, 1988) p.28.
19. G. A. Sutherland "Mongolian Imbecility in Infants" op. cit. note 2 p.640.
20. G. Rosen Madness in Society (London: Routledge and Kegan Paul Limited, 1968) , pp.248-258.
21. J. Hutchinson "Clinical Lecture on Heredito-syphilitic struma: and on the teeth as a means of Diagnosis", British Medical Journal i (1861): 515.
22. G. A. Sutherland "Mongolian Imbecility in Infants" op. cit. note 2 p.640.
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24. G. A. Sutherland and J. W. Thompson Walker op. cit. note 5.
25. For a discussion of the practice of 'blaming the victim' see N. Henley Body Politics (New York: Simon and Schuster Inc., 1977) p.207, and W. Ryan Blaming the Victim (New York: Random House, 1971).
26. J. H. Jones Bad Blood. The Tuskegee Syphilis Experiment (New York: The Free Press, 1981) pp. 16-29.
27. G. E. Sutherland The Treatment of Disease in Children (London: Oxford University Press, 1907), pp.270-276.
28. G. E. Sutherland "Mongolian Imbecility in Infants" op. cit. note 2 p.641.
29. G. E. Sutherland "The Differential Diagnosis of Mongolism and Cretinism" op. cit. note 2.
30. G. E. Sutherland op. cit. note 28.
31. A. F. Tredgold Mental Deficiency 1st edition

(London: Baillière, Tindall & Cox, 1908) pp.181-90.

32. K. Jones A History of the Mental Health Services (London: Routledge & Kegan Paul, 1972) p.198.

33. A. F. Tredgold op. cit. note 31 p.182.

34. Ibid. p.183.

35. Ibid. p.183.

36. Ibid. p.362.

37. Ibid. pp.183-4. In formulating this theory he was probably influenced by that of the American Superintendent of the New York Institution for the Feeble-minded, Dr. J. C. Carson. He had published his ideas on the aetiology of Down's syndrome in the 1907 issue of the Journal of Psycho-Asthenics (pp.44-48) which Shuttleworth, a close associate of Tredgold subscribed to. Shuttleworth also published a very similar theory of 'mongolism' in 1909 "Mongolian Imbecility" B.M.J. ii (1909): 661.

Carson, in his paper, had taken issue with Barr's findings that "Mongolians" were not the last born (however, an inspection of a photograph of an individual whom Barr considered to be a "Mongolian" would have made it quite clear that he did not only include people with Down's syndrome within this category). Carson, during his twenty-two years of superintendency at the institution, had had seventy-two children of the Mongolian type and forty two of these were last born. He therefore considered that the cause of the Mongolian type was some inertia or lack of the essential vitality in the procreating powers of the mother during the last years of the child-bearing period. He speculated that the same cause must be operating "in the reproductive effort at other times and especially as it also appears by the statistics, in the first born, but to a milder extent than in the last born." He, unlike Tredgold, ruled out heredity because the rest of the children in the family were normal.

38. The Royal Commission's recommendations are described in more detail by K. Jones op. cit. note 32 pp.191-193. See also G. R. Searle Eugenics and Politics in Britain 1900-1914 (Leyden: Noordhoff, 1976) p.106.

39. Noted in the obituaries of Shuttleworth and Beach. "Obituary. G. E. Shuttleworth" B.M.J. i (1928): 1004. "Obituary. F. Beach" B.M.J. ii (1929): 479.

40. K. Jones op. cit. note 32 p.188.

41. A. F. Tredgold op. cit. note 31 p. 360-1.

42. Ibid. p. 361.
43. Ibid. pp.359-360.
44. G. E. Shuttleworth "Address on degeneracy: physical, mental and moral" B.M.J. i (1904): 1205-6.
45. "Report of the Members of the Royal Commission on the Care and Control of the Feeble-minded upon their visit to American Institutions." Extract reproduced by G. E. Shuttleworth: in G. E. Shuttleworth and W. A. Potts Mentally Deficient Children (London: H. K. Lewis & Co., 1916) p.224.
46. K. Jones op. cit. note 32 p.193.
47. Ibid. p.198.
48. Extract reproduced by David Barker in "How to Curb the Fertility of the Unfit: the Feeble-minded in Edwardian Britain" Oxford Review of Education 9 (1983): 205.
49. A. F. Tredgold Mental Deficiency 2nd. edition (London: Baillière, Tindall & Cox, 1914) p. 456.
50. Ibid. p. 457.
51. Ibid. p. 458.
52. Ibid.
53. Ibid. p. 459.
54. Ibid.
55. Ibid. pp. 460-461.
56. K. Jones op. cit. note 32 p.208.
57. G. Rosen op. cit. note 20 p.256; and G. W. Ross and E. Jones "On the Use of Certain New Chemical Tests in the Diagnosis of General Paralysis and Tabes", British Medical Journal i (1909): 1111.
58. H. C. Stevens "Mongolian Idiocy and Syphilis", J.A.M.A. LXIV (1915): 1636.
59. For a discussion of the child's feelings about his back see E. Erikson Childhood and Society, (London: Paladin Grafton Books, 1987) p.226.
60. As reported by Sutherland in Treatment of Disease in Children (London: Oxford University Press, 1913) p.344.

61. A. B. Moulton "Wassermann Tests: six hundred cases of feeble-minded at the Minnesota School for feeble-minded and colony for epileptics", J. of Psycho-Asthenics xviii (1914): 222.
62. H. C. Stevens "The Spinal Fluid in Mongolian Idiocy", J.A.M.A. LXVI (1916): 1373.
63. The need for informed consent was considered prior to this time by for example Walter Reed. See W. B. Bean "Walter Reed and the Ordeal of Human Experiments", Bulletin of the History of Medicine 51 (1977): 75-92.
64. H. C. Stevens op. cit. note 58 p.1373.
65. E. R. Johnstone "Discipline" Journal of Psycho-Asthenics 7(2) (1902): 38-46, in The History of Mental Retardation, Vol.2 eds. Rosen M., Clark G., Kivitz M.. (Baltimore: University Park Press, 1976) p.111. Following the setting up of the Board of Control, British superintendents were not permitted to administer corporal punishment to any patient in an institution for "mental defectives". Without such a restriction, like their American counter-parts, they would probably have used this sanction. Shuttleworth, for example, wrote in 1916: "It is true that corporal punishment is rarely beneficial; yet there are cases where pain wantonly inflicted on others is appropriately visited by pain inflicted on the offender." G. E. Shuttleworth and W. A. Potts Mentally Deficient Children. Their Treatment and Training (London: H. K. Lewis & Co., 1916) p.217.
66. Bleeker Van Wagenen "Surgical Sterilization as a Eugenic Measure", J. of Psycho-Asthenics xviii (1914): 188.
67. A. C. Rogers "The Futility of Surgical Treatment of Idiocy" The Journal of Psycho-Asthenics III (1898): 93-95.
68. Ibid. p.94.
69. Bleeker Van Wegenen op. cit. note 66 p.188.
70. R. C. Scheerenberger A History of Mental Retardation (Baltimore: Paul H. Brookes, 1983) p.127.
71. T. Leonard "Minutes", Journal of Psycho-Asthenics xxi (1917): 114.
72. Ibid. p.114.
73. Sections 20 and 21. Section 20 provides that when a child is brought before the juvenile court as dependent

or delinquent, and it appears to the court on the testimony of the physician or psychologist that such child is feeble-minded, the court may adjourn the proceedings and order a hearing on petition. Section 21 provides that on the conviction by a court of any person of any crime, if the court is satisfied on the testimony of a physician or a psychologist that the person is feeble-minded, he may suspend sentence and direct that a petition shall be filed in accordance with the commitment law; if not the feeble-minded he shall impose sentence. See T. H. Leonard "General Synopsis of the Commitment Law in Illinois and Three Years Experiences with it" The Journal of Psycho-Asthenics XXIII (1918): 169-174.

74. Ibid. p.174.

75. T. H. Leonard op. cit. note 71 p. 104.

76. Ibid. p. 104.

77. Dr. Johnson was a Superintendent of a New York institution. No commitment existed in his District, however, as it did in Illinois.

78. A. Johnson "The Self-supporting imbecile", Journal of Psycho-Asthenics iv (1900): 91-100. Such superintendents were often to discover the wrongness of their views about the lack of need of special care of their charges; they were sometimes made strikingly aware of the great vulnerability to infection of some of their 'patients'. For example T. H. Leonard experienced an epidemic of influenza at Lincoln in which 700 (out of 2300) inmates were affected. Forty seven of these people died - mainly those whom he had mistakenly regarded as strong. He wrote: "The disease seemed to take our strong boys at the farm more than any other group in the Institution. The lower grade of intelligence and individuals of infirm make-up, also little babies [those that received special care] had the disease and escaped without any fatal results, while the stronger boys [those that did not receive special care when they were ill, but most definitely needed it] contracted the disease, developed broncho-pneumonia and died." See T. H. Leonard "Discussion" (following Wilmarth's paper on "Influenza in an institution for the feeble-minded") Journal of Psycho-Asthenics xxiv (1919): 25.

79. A. Johnson "Discussion" (following E. R. Johnstone paper on "Discipline") op. cit. note 65 p.114.

80. L. J. Gordon "The Incidence of Inherited Syphilis in Congenital Mental Deficiency", Lancet ii (1913): 861.

81. Ibid. p.862. Gordon's conclusions about Down's

syndrome were noted by Tredgold in the second edition of his text-book on mental deficiency. A. F. Tredgold Mental Deficiency 2nd edition (London: Baillière, Tindall and Cox, 1914) p. 213.

82. S. N. Clark "The Criteria of Defective Mental Development", Journal of Psycho-Asthenics XXII (1917): 80.

83. Ibid. p.84.

84. Ibid.

85. Ibid. p.86.

86. Ibid.

87. Ibid. p.87.

88. Ibid. p.81.

89. Ibid. p.82.

90. Ibid. p.80.

91. Ibid. p.85.

92. H. C. Stevens op. cit. note 62 p.1374.

93. Ibid. p.1638.

94. S. R. Miller and R. L. Levy "The Colloidal Gold Reaction in the Cerebro-spinal Fluid", Bull. of the Johns Hopkins Hosp. XXV (1914): 134.

95. H. C. Stevens op. cit. note 62 p.1374.

96. Ibid.

97. Ibid.

98. J. McClelland and H. Ruh "Syphilis as an Etiologic Factor in Mongolian Idiocy", J.A.M.A. LXVIII (1917): 777

99. Ibid. p.778.

100. Ibid. p.779.

## CHAPTER EIGHT

### MAN OR MONKEY: CROOKSHANK'S IMMORAL IDEAS

Francis Graham Crookshank (1873-1933),<sup>1</sup> a London physician, studied and treated people with Down's syndrome for a large part of his working life. He published several papers and a book (this went through three editions) specifically on the subject. His book in particular served to stimulate much discussion and was an important influence on Lionel Penrose (discussed in the next chapter).

Although his study of Down's syndrome did not begin until several years after he had qualified from University College London,<sup>2</sup> he had always been interested in 'mental abnormality' and his first job was<sup>3</sup> that of an asylum medical officer.

Like his contemporary counterparts in America and Britain, who were described in the previous chapter, he made the assumption in his early work that mental, physical and moral 'weakness' were intimately related and he did not discount the possibility that syphilis could affect the development of the germ cells. He stated:

Idiocy, criminality, insanity, eccentricity or wayward genius are all the result of a general protoplasmic vice.<sup>4</sup>

Crookshank, himself, classified these scientific/philosophical beliefs that he held as

"psycho-physical parallelism, bred by agnosticism out of  
5  
materialism."

This mode of perceiving man was also integral to his concept of Down's syndrome and was the main reason that, in spite of the fact that he made apparently similar assumptions to John Langdon Down (ontogeny recapitulates phylogeny and the different races vary in their intelligence) in formulating his concept, the implications associated with it were quite different.

While Down had believed that the existence of people with Down's syndrome was evidence in favour of the concept of the unity of mankind, Crookshank drew no such conclusion. This was because although he, like Down, believed that people with Down's syndrome had not fulfilled their phylogenetic potential at the end of their pre-natal developmental period, so that they displayed primitive characteristics, Crookshank had rejected the Biblical account as a means of explaining the relationship between the human races and had turned  
6  
to contemporary Darwinian polyphyletic theories for information on their phylogenetic connections.

These theories, of course, had abandoned the idea that the Caucasian race was the original type from which the other races had degenerated; the Caucasian race, on the contrary, was believed to have been the race which had developed furthest from the earliest representatives of mankind and its present members were considered to be descendants of primitive 'types' of people. Within this



new explanatory framework a baby born with apparently inferior characteristics to Caucasian parents could no longer be assumed to represent an imperfect, pathological state of development (as the races other than the Caucasian had been considered to have been at within the former theory of race formation by the process of degeneration). Rather, his development could now be viewed as having ceased at the primitive stage certain of his direct ancestors had reached.

Crookshank reasoned that this stage in the 'mongolian imbeciles' might, in fact, not be the Mongolian one, but could be an earlier one, so that people with Down's syndrome would then be analogues of one of the monkeys or apes from which man at this time<sup>7</sup> was believed to have evolved.

Crookshank's was actually not an original theory; other investigators had perceived that the apparent similarities between people with Down's syndrome and members of the Mongolian race were not as great as John Langdon Down had supposed. Down's own son, Reginald Langdon-Down, who had taken over his father's private institution, Normansfield, rather than abandoning the concept of ethnic degeneration, simply assigned the person with Down's syndrome to another species as opposed to another race. He had written:

It would appear...that the characters which at first sight strikingly suggest Mongolian features and build are accidental and superficial, being constantly associated as they are, with other features which are in

no way characteristic of the race.

One of the features that he was referring to was intelligence, so that he reasoned that if Down's syndrome were a "case of reversion it must be reversion<sup>9</sup> to a type even further back than the Mongol stock."

Dr. D. W. Hunter, who had taken over from Shuttleworth at the Royal Albert Asylum in 1893, had observed, following Reginald Langdon-Down's comments, what he believed to be similarities between the orang-utan and the person with Down's syndrome. He wrote in 1909:

These morphological aspects of the condition suggested that the orang-outang possibly approached much nearer the line of human ancestry than either the gorilla or chimpanzee.<sup>10</sup>

Crookshank stated a similar conclusion in 1912. However, he later denied that he was aware of Hunter's reasoning at the time and claimed that the first he knew of Hunter's work was when Shuttleworth pointed out that Hunter had made the analogy between oranges and Caucasian 'mongols' before him. This, Crookshank said, led him to contact Hunter, who gave him all his notes on the<sup>11</sup> subject. Crookshank did differ from Hunter in his belief that some 'mongoloids' were closer to the Mongolian race than the orang-utan in their degree of development.

There were two related reasons for this aspect of Crookshank's reasoning: firstly, the racism of the anthropological theories he had accepted as correct; and

secondly, the diagnostic criteria he adopted to categorize an individual as a 'mongol'.

His diagnosis of who should be considered to be a 'mongol' in a Caucasian population was very loose in keeping with the view of the condition as a stage/stages of development. Thus Crookshank's concept of the 'mongol' embraced not only those with Down's syndrome, whom he called mongoloid imbeciles, but also certain white people (people of the Celtic 'type', Iberian 'type', Menachroic 'type' and Mediterranean 'type') whom<sup>12</sup> he considered to be inferior to Indo-Aryans; these he referred to simply as mongoloids.

The division of the Caucasian race into different types was far from a new development. Nor was the belief that the Indo-Germanic group was the most superior one.<sup>13</sup> Horsmann has shown how the origins of racial Anglo-Saxonism dated from the sixteenth century when England broke with Rome and the creation of the English Church stimulated an interest in the primitive Anglo-Saxon Church. This was also accompanied by an emphasis on the links between the Anglo-Saxons and their Germanic ancestors. Later, in the eighteenth century those studying the history and mythology of the northern nations had furthered the links between the Saxons and the German-Scandinavian peoples; and comparative philologists had joined language to race and nation tracing Anglo-Saxon roots deep into a pre-historic Indo-European past. In the nineteenth century George Combe,

the phrenologist, had praised the Teutonic branch over all other Caucasians and considered that the Celtic type remained far behind. The reasons for these differences, he maintained, actually lay in the physical conformation of the brain. The anatomist, Knox, also firmly separated the superior Scandinavian 'type' from the Jews, Gypsies and Celts. These ideas were taken up and popularized by British writers including Carlyle, Arnold and Kingsley.

None of these individuals, however, had regarded the 'Celts', Mediterranean peoples etc. as primitive enough to assign to the Mongolian group, so that Crookshank was the first to regard the differences between racial types in England and other European countries as this great, and also the first to wish really to distinguish sharply the 'Aryans' from other 'types' within the same society.

Crookshank assigned the Celts etc. to the Mongolian group on the basis of both physical and mental characteristics. He claimed that they often exhibited "a peculiar greenish complexion, which like that of the true olive, is Mongoloid, and not a variation on simple white." He speculated that they might have this feature because of "some infusion of Mongolian blood in historic<sup>14</sup> times", which the 'Germanic' branch of the 'Indo-Aryan' stock had escaped. These people, he believed were "doing their work in the world passably, if not brilliantly; but as a rule such adults are neurotic and

unstable, if they do not indeed exhibit certain physical defects."<sup>15</sup> And they were likely under certain environmental conditions to become the parents of the mongoloid imbecile. Thus, Crookshank gave the nineteenth century concept of degeneration, which Down had invoked to explain the occurrence of Down's syndrome (ie. the belief that 'neurotic' people were likely to give birth to 'idiots') a further element: the neurotic etc. were not truly 'English'.

In keeping with this reasoning, Crookshank believed that the characteristics of people with Down's syndrome were also displayed by other members of his 'mongol' group besides the human varieties. For example, he wrote:

The orang has small ears closely applied to the head, a face quite flat in the upper part, peculiar eyes, and a skull to our way of thinking deficient posteriorly. If the irregular features recall those of a race very dear to us, the face of the orang is ludicrously like that of a Tartar or Kalmuck.<sup>16</sup>

He also believed that the person with Down's syndrome, the orang and the Celt etc. had certain other characteristics of the same kind and therefore went on to say:

It may be said that though the young anthropoid is merry and bright, the adult...is somewhat melancholy. He sits and meditates, "comme un vieux bonze". His hearing is remarkably acute, though his sight is defective; and it is characteristic of the idiots that, while music appeals to them, their seeing powers are, for various reasons, not good. They seem to be, like the Chinese, often myopic. So, too, are the oranges. But the development of the occipital lobes in the oranges, in the idiots and in the short-headed mongols, implies an element of mind-blindness that to the psychologist explains some of the fundamental differences between the

Chinese and the Western minds; that accounts for them by the same subject; and that helps us to understand the mentality of the imbecile.<sup>17</sup>

Crookshank believed that there was a physiological explanation for these similarities of 'type': the 'Mongol' types, he considered, were characterized by a particular endocrine balance.<sup>18</sup>

The proposition that hormones were responsible for racial characteristics had been made by Sir Arthur Keith in a paper on acromegaly published in 1911.<sup>19</sup> Keith had been carrying out anthropological investigations by studying the differences in the size and form of bones at the museum of the Royal College of Surgeons, where he had been conservator since 1908. While rearranging the skulls he noticed that the pituitary fossa of a skull which had been considered to be of the Neanderthal type was double the ordinary size. At this time a relationship was known to exist between a disordered enlargement of the pituitary and the appearance of acromegalic traits. Keith was thus led to suggest that growth hormones might be concerned in the evolution of human races.<sup>20</sup> As he put it:

If a pathological disturbance could produce the one condition it seemed possible that a heightened physiological development might produce the other.<sup>21</sup>

That someone should then suggest that the 'mongoloid imbeciles' would possess a particular endocrine balance, in common with racial Mongols, was fairly predictable; as we have seen in a previous chapter, Down's syndrome, because of its similarities

with cretinism, had previously been treated as a condition caused by abnormal glands.

It is important here to examine exactly what hormones were considered to be at this time by both Keith and Crookshank when they invoked them to explain racial characteristics.

Keith was a staunch Darwinist, and had assumed that every aspect of Darwin's evolutionary theory was correct. He accepted, therefore, that Darwin's theory of pangenesis could adequately account for similarities in characteristics between the parents and the offspring. In this theory, Darwin had suggested that each cell of the body threw off minute particles, which he termed gemmules. The gemmules, after circulating through the body, supposedly collected in the sex organs, and thus formed components of the sperm and eggs. The idea was that the gemmules were transmitted in reproduction and consequently that they were responsible for determining the particular characteristics of the offspring. Since gemmules were received from both parents, the offspring would tend to resemble them both.

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Cunningham had made the analogy between gemmules and hormones and thus brought the theory into harmony with contemporary physiology. Although there was no real evidence that somatic hormones could affect the gametes or form any part of them, there were a number of reasons at the time for selecting this model of inheritance

rather than the Mendelian one.

Firstly, the continuous nature of Darwinian evolution appeared to be incompatible with the apparently discontinuous nature of Mendelian genetics.

Secondly, biologists in the early part of the century emphasised processes which could be studied physiologically and the Mendelian scheme could be viewed as a throwback to older theories dominated by hierarchies of morphological units, whose function could not be investigated by any known means.

Thirdly, although Mendel's laws had been found to apply to pea plants, they had not been demonstrated in a large variety of other organisms especially animals.

Crookshank, unlike Keith, did not discount Mendelism as a model of inheritance<sup>24</sup> (mainly because Cushing had demonstrated that the 'hypophyseal instability' apparently followed Mendelian lines). Like Keith, however, he also believed that acquired characteristics could be inherited,<sup>25</sup> although he did not view hormones as gemmules. The mothers' secretions, he considered, were influenced by environmental conditions (in particular, he believed, that the diet was an important controlling external influence on the polyglandular balance) and her 'internal secretions' could then, in turn, influence the internal secretory glands of the foetus determining his/her 'type'.<sup>26</sup>

By implication, in Crookshank's model, the father, therefore, obviously played a less important role than



the mother in determining the offspring's characteristics and in keeping with this assumption, he also suggested that various poisons could affect the development of the ovum, but did not consider (unlike Sutherland in his 1899 theory) that spermatogenesis<sup>27</sup> could be affected in a similar way.

In 1913 Crookshank carried out some work as a medical officer in the London County Council Schools. His examination of the children resulted in his labelling certain of them as "mongoloids", not because they were 'mentally defective', but simply because they looked slightly Japanese or Chinese. The characteristics necessary for the inclusion of a child within his mongoloid category were generally simply the possession of black hair, dark eyes and a head shape which Crookshank regarded as primitive. Such children, he assumed, were good tempered, imitative, docile, lacking in initiative, and unable to grasp abstract concepts of even the simplest order.

His interest in schoolchildren was not however solely confined to the abnormal types he could identify. The study of all children, he believed, could throw light on the history of mankind; the different ages of childhood standing for different epochs.<sup>28</sup>

Crookshank's publications on Down's syndrome ceased for a number of years after 1914 as a result of the outbreak of the First World War. During this war he

was posted to France to serve as the Medical Director of  
the Hôpital Anglais Militaire at Caen.<sup>29</sup>

His next papers on Down's syndrome reported additional evidence that he believed supported its anthropological nature. The first<sup>30</sup> focused on the hand-prints of people with the syndrome. The presence of one, rather than two, transverse lines in affected individuals had first been reported in 1909 by Reginald<sup>31</sup> Langdon-Down, who suggested that "this peculiarity was doubtless associated with the shortness of the metacarpals" and that as "it was a feature so constantly present it might be regarded as an aid to diagnosis in conjunction with other characters". Like his father, he studied the characteristics of people with Down's syndrome which were of some use; this, of course, contrasted sharply with Crookshank's approach, which was just aimed at proving his own theory and concurrently demonstrating Aryan (and his own!) superiority.

Crookshank's interest in the hand-prints stemmed from the observations of Professor Wood Jones, who, in 1920, had called the single line simian because it was present on the hands of Rhesus monkeys and orangs. Crookshank interpreted the occurrence of the single lines in human beings as evidence of their 'primitiveness' and deduced that in non-imbeciles it still indicated that the person was of the 'Mongolian type'.

<sup>32</sup>  
In another paper, in the same year, he turned

his attention to the fissured tongue. He noted that neither the chimpanzee, nor the gorilla, had a fissured tongue, but that he had observed an orang, who had a "beautifully 'typical' organ with a central sulcus, and regular lateral branches; like the pattern of a gravy dish." He also stated that he had observed a normal Tonkinese in hospital with as "well-marked a fissured tongue as that of any Mongolian imbecile."

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Crookshank, at this time, also stated what he considered to be the underlying relationship between the Celtic 'type' and the 'Mongolian imbecile'; the former, he stated, was caused by the "unit one might call Mongolian, albeit not dominant, but in recession," with the implication that the latter state was caused by the mating of two carriers (with the recessive gene).

He derived this belief from the work of a New York physician, Charles Herrman,<sup>34</sup> who had argued in 1917 that Down's syndrome was inherited according to Mendelian principles.

Herrman, himself, based his theory on the work of the psychologist, Henry Goddard, who largely as a result of his interpretation of his study of the Kallikak family, reasoned that 'feeble-mindedness' was inherited<sup>35</sup> as a recessive character. However, he considered that Mongolian idiocy was an exception because in most of the cases the family history was good. He had conducted an investigation of the special education classes in the

public schools and had found on average one case of Down's syndrome in each of these classes on the West Side and hardly any on the poorer East Side. He associated not only criminality and feeble-mindedness, but also believed that poverty was related to them; rich people were assumed to be of good stock therefore, and the only possible explanation for their production of children with Down's syndrome lay in the pre-natal developmental period. He wrote:

The sole and adequate cause of Mongolian imbecility is to be sought in the condition of the mother during pregnancy.<sup>36</sup>

Herrman did not question the association between poverty and feeble-mindedness but stated that his cases of mongolian imbecility had been seen chiefly among the poor, many from the East Side and that the reason that Goddard had failed to find them in the special classes in the East was that very few of them survived to school age because their parents had not given them as much  
37  
care and attention as the rich people.

Herrman also pointed out that there existed pedigrees of families where there was more than one child with Down's syndrome which would be expected to sometimes occur if the parents were both carriers of a recessive gene for Down's syndrome.

His reasoning was fairly logical and predictable given the mode of investigation of the inheritance and aetiology of 'mental and physical abnormality' which existed at the time i.e. the investigation of family

pedigrees. It should be noted that he did not attach great importance to the reported association between Down's syndrome and advanced maternal age because he had observed that two-thirds of the children with Down's syndrome were born to mothers between twenty and forty, and only one third were born to mothers older than forty; in addition, Shuttleworth had shown that Down's syndrome could affect only one of twins and so Herrman considered that this suggested that pre-natal factors could not be the cause. Herrman was also able to discount both syphilis, having blood-tested the mothers of his cases of Down's syndrome, and abnormalities of the endocrine glands, because of the results of post-mortems.<sup>38</sup>

Herrman, however, at this time, did not confer any anthropological significance on the occurrence of 'mongolian imbeciles' and did not suggest that their parents were of an inferior European racial type. But,<sup>39</sup> in a later paper, following some discussion with Crookshank, he adopted the view that the parents probably had an infusion of Mongolian blood. He also accepted without question that anthropoid and Mongolian characteristics were unit factors, which must have been present in the parent trunk from which the human and the anthropoid branches were derived. Mongolian imbeciles, he believed, were exhibiting a combination of these unit factors.

As was stated earlier, Crookshank had considered that Down's syndrome could be inherited on Mendelian lines as early as 1912 (but at that time he only suggested that this was a possible explanation). However, he had not attempted then to explain how this could be reconciled with the role attributed to hormones of determining racial characteristics or with the increasing risk of Down's syndrome as the parental ages increased which had traditionally been explained as a deficiency in the reproductive powers of the mother. In his book published first in 1924 and later in 1925 and 1931, there was no attempt to incorporate any new explanatory frameworks of human genetics and human evolution, for example that of the new synthetic discipline, population genetics. He simply stated:

None of these points of view [the role of advanced age, hormones, unit characters] is really inconsistent with the rest of them.<sup>40</sup>

And he also wrote on the subject:

The search for "sole causes" is as an endeavour to attain the rainbow's end; that we have to do with an almost infinitely graded series each different from the other, not only in particular characteristics, but somehow in the circumstances of his birth and ancestry...that we can best understand the Mongol in our Midst when we come to see how, speaking in broad terms, we have to do with the selective effects of environmental factors upon embryos whose developmental recapitulation runs on certain lines. In the case of those mongoloids whose intelligence and development is of a high order, we are less concerned with the environmental factors than we are with the harmony between the parental tendencies. In the case of the defectives, or imbecile mongoloids, the retardatory effects of the environmental factors and the disharmony between inherited tendencies are probably much more important as "causes" of blundering in development.<sup>41</sup>

Although Crookshank's ideas received considerable contemporary discussion, few authorities on mental handicap were as willing as Herrman to accept the validity of his conception of Down's syndrome.<sup>42</sup> In fact, his work was actually highly criticized, partly on the grounds that his ideas were profane, and partly because it was considered that he was confusing theories with facts.

In the fifth edition of his text-book (1929) Tredgold largely rejected Crookshank's work, mainly on the grounds that members of the Mongolian race were not mentally deficient. He did not, however, question the reasoning that people with Down's syndrome were the result of an arrest of foetal development, which was, of course, an integral part of Crookshank's conception of the syndrome. In addition, he, like Crookshank, speculated that hormonal abnormality could be involved in the causation of the syndrome; a deprivation of a specific hormone or a combination of hormones could be responsible for the development arrest. Tredgold, however, no longer considered that the development arrest occurred during pregnancy as he, like Herrman, was aware of Down's syndrome occurring in only one of twins.<sup>43</sup>

Crookshank answered Tredgold's very brief criticism of his work in painstaking detail. He pointed out that he had never suggested that "mental deficiency - in the pathological sense" was "an essential and

constant characteristic of the racial Mongol." This statement was not inconsistent with his belief that racial Mongols were inferior intellectually to members of the Caucasian race. He also argued that it was illogical of Tredgold to, on the one hand, accept that the Mongolian imbecile was produced as a consequence of a development arrest, but, on the other, to fail to recognise the consequence of this - that "the fashioning of one's ancestors" would result from the occurrence of incomplete development.<sup>44</sup>

Crookshank's perception of the aetiology of Down's syndrome influenced his beliefs about all other medical conditions. He considered that sickness in general had no single causative factor; rather, he believed, that it was a consequence of many complicated and interacting problems arising partly from the individual's past and present and partly from environmental factors of all kinds. This attitude may be traced in his work on epidemiology and migraine.<sup>45</sup>

Towards the end of his life he introduced another element into his aetiological frameworks of all syndromes; the notion that human beings were themselves capable of worsening or minimising their own individual physical weaknesses; they could choose the state of health of their constitutions. People who behaved in certain ways would actually change their physical appearance; their endocrine balance would be modified,



and this could affect the "primary physical make-up" of their children. This was, of course, virtually the same conception of the inheritance of abnormality as that of the religious nineteenth century investigators who linked sin with insanity, and indeed, Crookshank commented in 1930 that there was "profound significance in the words of Jeremiah: The fathers have eaten a sour grape and the children's teeth are set on edge."<sup>46</sup>

He found the Adlerian school of individual psychology was compatible with his beliefs in that it opposed the fatalistic doctrine of psychical determination. Consequently, he became intimately concerned with the foundation of The Medical Society of Individual Psychology and subsequently became its chairman.<sup>47</sup>

#### Crookshank's treatment of people with Down's syndrome

Although Crookshank modified his concept of Down's syndrome between 1912 and 1931 he always retained a role for 'environment' as a force capable of affecting human development. As a result of this he believed that each of the different human 'types' functioned best in the environment which had helped shape it and so his treatment aim for the person with Down's syndrome was to bring the misplaced person into harmony with the unsuitable environment he had unfortunately been born into.

This could clearly be achieved in either, or both,

of two ways: the changing of the person to the 'type' appropriate for the environment or the alteration of the environment to simulate the conditions the 'type' would normally exist in.

His belief that people of the Mongolian type were characterized by a particular endocrine balance led him to attempt to change their type through altering their hormone levels to those of members of the 'Aryan' race. He made the assumption without any evidence that the Mongol was deficient in all his hormones.<sup>48</sup> He simply speculated that as they resembled the 'cretin' mentally and physically, and the 'cretin' was lacking in hormone from the thyroid gland, then persons with Down's syndrome must be similarly deficient. His rationale for giving thymus gland was their liability to all kinds of respiratory disease; Beard had shown that in fishes the thymus was probably protective to the organs of respiration.<sup>49</sup> There was little evidence to support his administration of 'gland substance' from the pituitary, the pineal, the gonads and the suprarenal. Some of these preparations were obviously likely to be harmful; the thyroid had repeatedly been shown to produce, not only no improvement, but adverse effects. As was discussed in the previous chapter, Sutherland had reported some years before on the futility of administering thyroid and thymus gland extracts.

Crookshank rejected the many reports of the

futility of this form of therapy and insisted:

The happy results of such treatment not only falsify the far too gloomy predictions commonly uttered, but go some way to justify the belief that, in mongolism generally, the endocrine balance is not that of so-called normal persons, and that in the imbecile mongoloids, this variation, probably a multiple deficiency - is accentuated, with a greater or lesser tendency to thyroidal inadequacy.<sup>50</sup>

These 'happy results' were apparently obtained in cases "without marked mental weakness or gross bodily defect." This suggests that his success stories were probably adults, who were mildly myxoedematous, whom Crookshank would have termed 'mongoloids' and regarded as harbouring the Mongolian unit factor. As Crookshank makes it quite plain, too, that he viewed hormone therapeutic success as necessary for the acceptance of his theories, it is possible that he exaggerated or even imagined positive results.

He explained his other forms of treatment in terms of his attempts to alter suitably the external conditions. For example, he treated the breathing difficulties of people with Down's syndrome by simulating the environment of the jungle where he considered the orang would be at his healthiest. He wrote:

In cold weather they wheeze and get croupy, as do the oranges in this country, until we imitate a jungle with its steamy aromatic heat by rigging up a steam tent and a bronchitis kettle for them. And so, the little mongoloid, like the expatriated orang, unless we have a care, dies before puberty, of phthisis or of croup or of bronchitis with asthma.<sup>51</sup>

Their diet, however, he believed should be that of

a Mongolian, rather than an orang, and he considered<sup>52</sup> that Eskimo food was particularly suitable being high in meat and fats. His choice of this diet appears to have been made on the basis of its similarities to Down's recommendations on the best food for people with Down's syndrome (he does not consider the problem of how the jungle and the polar regions could possibly both be suitable environments). Down had, of course, not believed in the suitability of a high fat and protein diet because it was 'Mongolian', but because he believed that this combination of food types was particularly nutritious.

### Conclusion

Crookshank's adoption of a mode of reasoning which involved such a complete separation of 'degenerates' from the strong and powerful people was fully in keeping with the medical perceptions of abnormality which had developed in Britain in the early part of the twentieth century; rather than attempting to prove the 'unity of mankind' and accord all members of mankind basic human rights (as Conolly and Down had done), contemporary medical authorities wished to place the 'unfit' apart from the rest of the human race both theoretically (through Darwinian anthropological theories) and practically (through segregation).

#### CHAPTER EIGHT: NOTES

1. "Obituary of F. G. Crookshank" British Medical Journal ii (1933): 848.
2. Ibid.
3. Ibid.
4. Crookshank F.G. Essays and Clinical Studies (London: H. K. Lewis, 1911) p.24.
5. Op. cit. note 1.
6. For example, H. Klaatsch "Discussion", Nature lxxxv (1910): 119, 206, 508. The foundations of the polyphyletic theory of human origins were laid by a materialist follower of Darwin, Karl Vogt. Polyphyletism is discussed in more detail by Léon Poliakov in The Aryan Myth (Sussex: Heinemann, 1974) p. 279. Vogt's life and works are discussed by Frederick Gregory in Scientific Materialism in Nineteenth Century Germany (Dordrecht: Reidel, 1977) Ch.III pp.51-79.
7. F. G. Crookshank "Mongols", Universal Medical Record iii (1913): 12. F. G. Crookshank "A Note on Mongolism", Proc. Roy. Soc. Med. vi. Sect. Study Dis. Children (1913): 124-6.
8. R. L. Langdon-Down "Discussion" Journ. Ment. Sci. liii (1906): 187.
9. Ibid.
10. D. W. Hunter "Discussion" British Medical Journal ii (1909): 665.
11. F. G. Crookshank The Mongol in our Midst Third Edition (London: Kegan Paul, 1931) p.55.
12. F. G. Crookshank op. cit. note 7 p.13.
13. R. Horsmann "Racial Anglo-Saxonism Before 1850" Journal of the History of Ideas xxxvii (1976): 387.
14. F. G. Crookshank "Mongols" op. cit. note 7 p.15.
15. Ibid. p.13.
16. Ibid. p.18.
17. Ibid. p.19.

18. First discussed by Crookshank in "On Certain Polyglandular syndromes", Lancet i (1912): 1716.
19. Sir A. Keith "An Enquiry into the Nature of the Skeletal Changes in Acromegaly", Lancet i (1911): 993.
20. Sir A. Keith "The Evolution of Human Races in the Light of the Hormone Theory", Johns Hopkins Hospital Bulletin xxxiii (1922): 156.
21. A. Keith *ibid.* note 20.
22. A. Keith "The Differentiation of Mankind into Racial Types" Lancet ii (1919): 556. Darwin's theory of pangenesis is discussed further by D. Oldroyd in Darwinian Impacts (Open University Press, 1980), p.140.
23. Cunningham had made the deduction that hormones could affect the gametes on the basis of the fact that it had been shown that a hormone produced by the testis or ovary passed into the blood and affected the development of the secondary sexual characters. J.T. Cunningham "Hormonal Theory of Pangenesis" Proc. Zoo. Soc. Lond. (1908): 434.
24. F. G. Crookshank "The Antiquity of Man", Universal Medical Record ii (1912): 417.
25. *Ibid.* p.417.
26. *Ibid.*
27. *Ibid.* p.27.
28. F. G. Crookshank "Biology, Anthropology and Some Disorders of Childhood" School Hygiene V (1914): 67.
29. *Op. cit.* note 1.
30. F. G. Crookshank "Hand-prints of Mongolian and other Imbeciles", Trans. Med. Soc. of London xliv (1921): 155.
31. R. L. Langdon-Down "Handprints" British Medical Journal ii (1909): 665.
32. F. G. Crookshank "The Fissured Tongue of Mongolian Idiots", Med. Press and Circular cxi (1921): 297.
33. F. G. Crookshank *op. cit.* note 30.
34. C. Herrman (1917) "The Etiology of Mongolian Imbecility", Archives of Pediatrics xxxiv (1917): 494.
35. Goddard's assumptions from his inheritance theory

are contained in, for example, his paper "Improvability of Feeble-minded Children" Journal of Psycho-Asthenics 17 (1913): 121-131.

36. Noted by C. Herrman op. cit. note 34 p.499.

37. Ibid. p.501.

38. Ibid. pp.495-498.

39. C. Herrman "Mongolian Imbecility as an Anthropologic Problem", Archives of Pediatrics (1925): 523.

40. F. G. Crookshank op. cit. note 11 p.320.

41. Ibid. p.320.

42. Barr, however, does appear to have accepted Crookshank's theory, commenting on certain apparent characteristics of the person with Down's syndrome which Crookshank had suggested existed eg. sitting with "crossed legs, tailor fashion" (Crookshank called this the "Buddha" attitude). In addition, Barr also considered that an Ethiopian or Negroid type of idiocy existed. See M. W. Barr and E. F. Maloney Types of Mental Defectives (London: H.K. Lewis & Co. Ltd., 1921) p. 141.

43. A. F. Tredgold Mental Deficiency 5th edition (London: Baillière, Tindall & Cox, 1929) pp.217-218.

44. F. G. Crookshank op. cit. note 11 pp.418-420.

45. Op. cit. note 1.

46. F. G. Crookshank "Types of Personality with Special Reference to Individual Psychology" Lancet I (1930): 546.

47. Op. cit. note 1.

48. F. G. Crookshank op. cit. note 12 p. 309.

49. F. G. Crookshank op. cit. note 7.

50. F. G. Crookshank op. cit. note 11 p.309.

51. Ibid. p.167.

52. Ibid. p.166.

## CHAPTER NINE

### PENROSE'S STATISTICS AND STERILISATION

In this chapter I shall consider the factors influencing Lionel Sharples Penrose's formulation of his conception of Down's syndrome in the early 1930s in Britain, and the reception that it received by other contemporary authorities on mental deficiency including Arthur Tredgold.

Penrose was born on 11th June 1898. He attended Leighton Park, a Quaker School. The First World War had broken out when he left school and he chose to enter the Friends' Ambulance Train in France. Shapiro considers that this service confirmed in him a compassionate interest in human suffering and a detestation of war. After the war he went to Cambridge and began reading mathematics, but later he changed to the Moral Sciences Tripos, for which, in addition to mathematics and mathematical logic, he also studied psychology.

After gaining a First in his Tripos he spent a year at Cambridge doing research in psychology. He then went to Vienna to continue his studies, and while there he became interested in abnormal psychology and psychoanalysis, had contact with Freud, and underwent a personal training analysis. At that time he contributed a paper on 'Negation' to the International Journal of



Psycho-analysis. He then decided that a qualification in Medicine was necessary to enable him to pursue his interests; therefore he returned to Cambridge, and after his pre-clinical studies there went on to St. Thomas Hospital, qualifying in 1928. His professional life began with a research studentship at the Cardiff City Mental Hospital. His research was on schizophrenia and this was the subject of his thesis for the M.D. degree<sup>1</sup> which he obtained in 1931.

The same year, he began his study of Down's syndrome at the Royal Eastern Counties Institution. He had been appointed there to carry out an investigation into the causes of 'mental deficiency' - the now classical Colchester Survey. Shapiro<sup>2</sup> considers that only a man of Penrose's background, with his knowledge of mathematics, psychology and biology, as well as medicine could have shouldered such a project.

Penrose's interest in Down's syndrome continued for many years after he left the Eastern Counties Institution and George Smith and Joseph Berg, who were co-workers of Penrose, have presented a paper which specifically focused on the question of what motivated him to spend so much of his life working persistently on this problem. They consider that the main reason for Penrose's attention to Down's syndrome lay in his belief that its study had implications for the understanding of mankind. They write:

Penrose visualised the mongol as a remarkable

natural phenomenon. In his eyes the mongol was a very special variety of man, possessing exceptional physical, mental and social characteristics. Nature had thus provided a very unusual and useful experiment, and if it could be understood our scientific knowledge in many human spheres would be increased.<sup>3</sup>

They therefore imply that the primary aim of Penrose's study of people with Down's syndrome was not to help them, but to make a specific scientific discovery; and that he approached their investigation objectively, in a value-free way. It is true that Penrose's study of the people with mental handicaps, including those with Down's syndrome at the Royal Eastern Counties Institution was not bound up with attempts to help them through education in the way that for example Séguin's or Down's was. This was a consequence of the fact that he was not the Medical Superintendent at this institution, but had been appointed there as a research officer with the task of investigating the causes of mental handicap.

The full-time employment of scientists in institutions was far from a new idea. America had led the way in the establishment of these posts; in the early twentieth century the superintendent of the Vineland Training School, E. R. Johnstone, became committed to the idea that public institutions should be considered as human laboratories. He arranged that not only one research officer should be appointed, but that an entire department was formed. Henry H. Goddard was appointed to run it and soon had established three

divisions to study biochemistry, neuropathology, and clinical psychology.<sup>4</sup>

Such researchers were free to concentrate all their efforts on academic problems in a way which was impossible for the medical superintendent whose time had to be largely devoted to the practical running of the institution; they were therefore able to accomplish much scientific work and in the cases of both Goddard and Penrose the research results turned out to be of some importance in shaping official attitudes and opinions about mental handicap.

Daniel Kevles<sup>5</sup> has recently outlined the background to Penrose's appointment, as well as created a vivid picture of the man himself. He reveals that Penrose's investigations were largely a consequence of a 1929 survey on mental deficiency by Edmund O. Lewis which showed that there had apparently been a large increase in its incidence particularly in rural areas. Lewis contacted the Darwin Trust to suggest that funding was needed to determine the reason for this. Consequently, the Trust combined with the Medical Research Council and the Royal Eastern Counties Institution (an institution in the rural area which had been found by Lewis to have the highest incidence of mentally deficient children) to fund the creation of a post (subsequently filled by Penrose) specifically for this purpose.

Penrose thus began to study the people with mental

handicap at Colchester at the instigation of people who had provided money for his work not to aid those currently in the institution, but to prevent people with handicaps being born in the future. In addition, the value of sterilising the feeble-minded for eugenic reasons had recently been strongly stated.

As a means of preventing the reproduction of those with abnormal germ cells, sterilisation had always been perceived by some as an alternative to segregation, but, in the first years of the twentieth century, had been generally rejected because it would not afford society the protection it was believed to need from the criminal tendencies of the defective at liberty. By the 1920s, however, it was recognized that it was much too expensive to provide institutional care and training for all the 'defectives' who had been ascertained. When the Mental Deficiency Act of 1927 was passed (this extended the scope of the law to people who had become 'mentally deficient' before the age of eighteen, rather than simply to those whose mental deficiency had existed from birth or an early age) 60,000 people had been ascertained, but only 5,301 institutional beds had been provided by local authorities. There were clearly many 'defectives' at large in the community who had the potential to produce children.

Influential physicians and scientists argued for the sterilisation of hereditary cases of mental

deficiency, who were considered to pose the main danger to the common good and to the racial future. Ronald Fisher, the population geneticist and James Kerr, for example, advocated their mass-sterilisation.

<sup>7</sup>  
Kerr, in 1926, put forward strongly the case originally advanced by Martin Barr for the asexualisation (castration/ ovariectomy) of all the congenitally feeble-minded, who had been in special schools for two years. This he advised should be carried out before the children reached twelve years. He wrote:

This is the only logical treatment and will be adopted as the most effective scientific measure to put an end to a great part of the future sociological risks.<sup>8</sup>

He believed though, that it would be necessary to begin with the later generations of the hereditary cases of mental disease who were admitted to institutions; and stated "this, of course being merely a beginning to familiarize the idea".

Like Adolph Hitler, in his work Mein Kampf, Kerr insisted that community interests should be placed above individual interests.<sup>9</sup>

The English Law, however, held that sterilisation was illegal. In 1925, Lord Riddell stated that sterilisation amounted to maiming. It would be classed as "unlawful wounding" under Section 20 of the Offences against the Person Act, 1861, or ill-treatment under Section 55 of the Mental Deficiency Act, 1913, or "assault" and unnecessary suffering" under Section 12 of

10

the Children Act, 1908.

Kerr believed that it was necessary to make it a crime to be feeble-minded, so that "the law can as simply and justly prescribe sterilisation as it now orders execution for murder...The court would decide whether a case was congenitally feeble-minded or not, and after that, order would be made and the law take its course automatically. Appeals and further processes of law should be made costly and difficult in these cases."<sup>11</sup>

He warned, too, against a possible repetition of the contemporary American situation in which although laws had been passed in many states they were not effectively being put into force.

An inspection of some of Penrose's philosophical essays written while he was a student throws some light on Penrose's own views of the 'weak' in society and how the 'strong' should treat them.

12

One particularly pertinent extract from an essay was his attitudes to the theories of the nineteenth century nihilist philosopher, Friedrich Nietzsche. Penrose wrote:

I believe Nietzsche was more right than any philosopher in his doctrine of the super-man for the weak cannot help anyone. But I do not see why the strong should not help the weak to rise to a position of equilibrium afterwards when it is possible though altruism had better not be their primary motive as it will scarcely be unmixed.<sup>13</sup>

Nietzsche, himself, believed that evil proceeds from weakness and he abhorred the Christian morality that

said 'blessed are the meek'. Only anything which increased power did he consider to be good. Penrose also shared with Nietzsche a strong dislike for religion (Nietzsche's views may be summed up in the dictum 'God is Dead') and wrote one essay entitled "Why religion must die out",<sup>14</sup> and another written in biblical style about the evolution of life was, quite clearly,<sup>15</sup> deliberately blasphemous in its cynical style.

This might seem surprising considering that Penrose had come from a Quaker family, but a consideration of his childhood may go some way to offering an explanation for his attitudes. Kevles paints a bleak picture of Penrose's upbringing:

In the Penrose household the physical demonstration of affection was rare, and the expression of feeling was strongly discouraged. Such indulgences as fiction, theater and music were prohibited, although games like chess were allowed; card games too, so long as jack, queen and king were replaced as though they were biblically proscribed graven images by 11, 12 and 13.<sup>16</sup>

The feelings including anger, which Penrose was forbidden to display as a child would not have disappeared. It seems that they were transformed into a more or less conscious hatred directed against substitute persons - religious people in general, whom he described as the "most contemptible of all persons and above all the most dangerous."<sup>17</sup> He could take revenge on his god-like family by the socially permissible attempt to destroy religion and God by intellectual argument.

His attraction to Nietzsche's 'Übermensch' could be interpreted as a means of reversing roles - he would now be one of the powerful masters whom the adults had been when he was a child.

From the outset of Penrose's study of people with Down's syndrome at Colchester he regarded them chiefly as a means of solving problems related to 'mental deficiency' in general. And the greatest of these problems which he faced when he began work at the institution was the most fundamental one: how should he approach his task of investigating the aetiology of mental handicap?

Just as the earlier investigators in this thesis had devoted much of their time to the study of Down's syndrome because they perceived it as a clear type of 'idiocy', so Penrose began his research with this in mind. An examination of the characteristics of people with Down's syndrome could, he believed, reveal exactly why they had been regarded as a specific 'type' and therefore provide a means of identifying other 'types' among the mentally deficient who would be likely to be characterized by unity in causation. In addition, there was still not even unanimous agreement that there was such an entity as mongolism. One contemporary paediatrics textbook stated that "most observers deny<sup>18</sup> that this is an independent disease," and in another on nervous and mental diseases the writer said that he



had never convinced himself that the term "mongolian imbecility, has any justification whatever."<sup>19</sup> Tredgold, while considering that 'mongolism' did exist noted that "many ordinary aments, and even normal individuals, possess one or more of the peculiarities which go to the make up of mongolism. It is the combination which is characteristic of the condition."<sup>20</sup> Cases of Down's syndrome also appear to have frequently gone undiagnosed<sup>21</sup> in spite of the definite and striking nature of the disease.

x

Penrose focused on the characteristics<sup>22</sup> which had previously been associated with 'mongolism' and which were either easy to observe or to measure: the fissured tongue, the epicanthic fold, the transverse palmar line on either hand, one crease only on the minimal digit of either hand, the intelligence quotient, the cephalic index and conjunctivitis at the time of examination. He examined both the incidence of each of these features in fifty 'mongols' and in three hundred and fifty unselected control cases. By this he was able to show that some of the characteristics in Down's syndrome were much more specifically diagnostic than others (the I.Q. and the cephalic index being of the least diagnostic value), and also that a quite different frequency distribution was obtained for the number of characteristics present in the control group from that found in the 'mongol' group, which confirmed that there was an entity 'mongolism', "which justifies the use of a

23  
separate word to describe this class of imbecile."

Although he had developed a method which could, perhaps, help decide whether other people at the institution, who shared certain physical and mental characteristics, were of the same 'type', he still continued to devote his attention largely to Down's syndrome, which he had now proved definitely was an 'entity'.

One of the main reasons for this was that Down's syndrome offered the promise of throwing light on how environment interacted with heredity in causing mental disease. Penrose had concluded that there was good evidence that Down's syndrome was a condition in which both environmental and hereditary factors were involved in causation, and had made the assumption that all abnormal mental conditions would also probably be caused by the interaction of both genetic and 'environmental factors.

In the particular case of Down's syndrome, he perceived the association between its occurrence and both raised maternal age and toxic factors (which had been noted by Carson, Tredgold and Shuttleworth) as indicative of an environmental causative component. He made the assumption that Down's syndrome had a genetic component as a result of reading the fifth edition (1929) of Tredgold's book on mental deficiency. Tredgold had noted that there were families where there was known

to be more than one 'mongol' in it, and also reported the results of twin studies which suggested that Down's syndrome was gametic in origin. In addition, Tredgold had continued to emphasise that neuropathic inheritance was more prevalent in 'mongols' than in the rest of the population.<sup>24</sup> These pieces of apparent evidence were to strongly influence Penrose's study of the causation of the syndrome, and were to lead to his conducting an intensive family investigation in which he discovered further families where there was more than one child with Down's syndrome.

He visualised the interaction between these factors occurring in an analagous way to that proposed by Herbert Jennings, an American geneticist, to account for abnormal development of the fruit fly. Jennings had written in his 1930 book, The Biological Basis of Human Nature:

Certain characteristics in the fruit fly illustrate similar relations between the effects of genes and the effects of the environment. *Drosophila* is commonly grown for experimental purposes in bottles containing decaying banana, the atmosphere within the bottles being moist. When so grown, certain individuals are defective in that the abdomen is ill-formed. This abnormality is found to be due to a defect in a gene of the X-chromosome, so that it shows a sex-linked inheritance, the abnormality being dominant.

But the abnormality also depends on the environment. It appears, in individuals having the defective gene, only if grown in a moist atmosphere. If grown in a dry atmosphere, the individuals are normal, even though they contain the defective gene. The production of the abnormal abdomen thus requires both a certain type of gene and a certain type of environment.<sup>25</sup>

Both Penrose and Jennings were reacting against

what they perceived as the over-statement of heredity in mental disease. Jennings was critical of the beliefs of eugenicists in America, who still accepted, in the late 1920s that insanity, feeble-mindedness, and epilepsy were all simple recessive traits. The experimental geneticists, he believed, had shown that the interaction of genes and the relation of genes to environment was far more complicated than the eugenicists realised. He stressed that there was a wide unpredictability from human matings because each person carried many genes so that any pair of parents could produce not merely thousands, but millions of different combinations, each yielding a child of different characteristics. He argued, for example, that "fools will produce wise men and wise men will produce fools".

In the present day, there is a tendency to write uncritically of Jennings work, perceiving it as more sophisticated than that of the contemporary workers in human genetics. Haller for example writes:

While Davenport and other eugenicists studied man, the more thoughtful and competent geneticists [including Jennings] investigated humbler forms of life that were subject to laboratory control.<sup>26</sup>

It should not be forgotten, however, that Jennings' work had speculative elements; he had no hard evidence from human genetics that the characteristics of human matings were as completely unpredictable as he stressed that they were.

Penrose was particularly critical of Goddard's

attempts to show that 'feeble-mindedness' was inherited<sup>27</sup> as a Unit Mendelian character and of the widespread popularity of his hypothesis. One of the major flaws in Goddard's reasoning, he believed, was that his distinctions between normal and abnormal individuals were arbitrary. Penrose considered that the success of Goddard's theory could be attributed to the assumption made by many that when no cure for a disease is known then its origin must be hereditary. Leprosy, he pointed out, had been viewed as a hereditary condition before the discovery of the lepra bacillus, and 'lepers' in Scotland had been castrated for this reason - the same mistake, he argued, should not be made with the mentally handicapped in Britain.

<sup>28</sup>  
In another paper he pointed out that some contemporary investigators had considered Down's syndrome to be entirely environmental in origin. For example Clark believed that Down's syndrome was caused by foetal hyperthyroidism because of a faulty placenta, but his argument contained a number of serious flaws. His reasoning was based on a synthesis of a number of<sup>29</sup> theories including those of Shuttleworth and Keith as well as animal experiments and twin studies. However, it should be noted that Clark did not really study these works and drew certain conclusions from Keith's theories which were not justified. Keith had concluded that the characteristics of the Mongolian race were determined by the thyroid gland because he considered that 'Mongolian

imbecility' was caused by a thyroid disorder - he reasoned that as people with Down's syndrome resembled 'cretins' the same gland must be responsible for their similar features. Clark mistakenly believed that he could deduce from Keith's conclusion that Down's syndrome was caused by a thyroid disorder.

Arthur Keith's reasoning

Down's syndrome is caused by a thyroid disorder.	----->	Features of the Mongolian race are caused by the thyroid gland.
-----------------------------------------------------	--------	--------------------------------------------------------------------------

AXIOM

DEDUCTION

Clark's reasoning

Features of the Mongolian race are caused by the thyroid gland.	----->	Down's syndrome is caused by a thyroid disorder.
-----------------------------------------------------------------------	--------	--------------------------------------------------------

AXIOM

DEDUCTION

Fig. 1

Clark did not understand the meaning of the twin studies which had demonstrated that Down's syndrome occurred because of an abnormality of the germ cells in either the mother or the father. He wrongly stated that the occurrence of Down's syndrome in twins provided evidence that an injurious influence was operating during pregnancy (when both twins were affected it had already been established that they were monozygotic).

Penrose does not appear to have examined Clark's work sufficiently thoroughly to recognise the flaws in

it.

Penrose was also aware that Crookshank had suggested that the hereditary component might be a consequence of an actual relationship between people with Down's syndrome and the Mongolian race or the orang-utan (he had read the 1931 edition of The Mongol in our Midst). Consequently one of the first investigations he carried out was related to Crookshank's hypothesis and involved the blood testing 'Mongolian imbeciles'<sup>30</sup> to see if their blood group distributon tended to follow that of the English, the Chinese or that of the orang-utan (the A. B. O. blood group had been discovered by Karl Landsteiner in 1900, but its mode of inheritance had not been explained until 1924 when Bernstein advanced the theory that two agglutinogens (A and B) were inherited as dominant Mendelian characters. It was subsequently recognized that that the distribution of blood groups varied according to the population). The question of the people with Down's syndrome's consent to these blood tests was not considered. Penrose only recorded that he was "much indebted to the medical superintendents of Darenth Training Colony, the Fountain Mental Hospital, Leavesden Mental Hospital, the Mutual Sanatorium, the Manor and the Royal Eastern Counties Institution for their permission to carry out tests on the patients at these institutions."

The results of his blood group tests, he suggested, proved that there was no special relationship between the 'Mongolian imbecile' and the Mongolian race (because the incidence of the 'character B' was low as it was in the rest of the English population) or to the orang-utan.

What is perhaps most interesting about this particular investigation is the way in which contemporary historians and scientists assume that Penrose's tests, simply because of their experimental/scientific nature, were completely valid and his reasoning perfectly sound. Kevles writes of this investigation:

Penrose confident that Crookshank's ideas were utter trash, surveyed the blood types of one hundred and sixty-six mongols and of a control group of two hundred and twenty-five other mental patients. He found that the distribution of blood types in the mongol group was about the same as that in the control group. The results meant, he wrote to a fellow physician, that 'mongolian imbeciles are no more racially Mongolian than other imbeciles'. To Penrose, the very term 'Mongolian imbecility' seemed scientifically inappropriate: foreshadowing current practice, he came to prefer the phrase "Down's syndrome"

The outcome of the blood-type study gave Penrose special pleasure. He liked Mongolian imbeciles.<sup>31</sup>

And Smith and Berg comment:

The paper [on blood groups] gives some insight into how Penrose's mind worked. He saw a false concept and immediately destroyed it by the simple demonstration of a scientific fact. That Penrose had to attack such an obvious myth gives us some idea of the low level of scientific thought which pervaded the field at the time he entered it.<sup>32</sup>

Actually, even at the time, this investigation came under attack for not being 'scientifically valid'.



Geoffrey Keynes pointed out a possible problem with the investigation, which was that Penrose had assumed that some linkage existed between 'Mendelian characters' giving rise to blood groups and the characters which were responsible for Mongolian appearance. If no such linkage existed then the determination of blood groups<sup>33</sup> would neither support nor refute Crookshank's theory.

Crookshank, himself, did not directly mention the linkage flaw in Penrose's conclusions, but simply pointed out that he was wrong in assuming that incidence of blood group B was always high in the Mongolian race. It had been shown that there was an exceptionally high frequency of A and a low frequency of B in Korea, Japan, Southern China, and also amongst Hungarians, Poles,<sup>34</sup> Ukranians and Egyptians.

Incidentally, it was Crookshank who objected, albeit rather hypocritically, to Penrose's use of the term "Mongolian imbeciles" and wrote:

May I first enter a protest against the continued use of the ugly expression "Mongolian imbeciles"? This, if it means anything at all, means Mongolian persons who are imbecile. The use of it, in our literature, for persons who are never Mongolian, and not always imbecile, gives offence: (1) to Japanese and Chinese ladies and gentlemen; and (2) to some English parents of the children who are neither Mongolian nor imbecile.

Surely it is much better to speak of the children and adults we have in mind, as mongoloids, indicating marked mental defect, if need be, by the prefixation of the word imbecile? We then have (1) mongoloids; and (2) imbecile mongoloids.<sup>35</sup>

It is rather simplistic, too, to regard Penrose's perception of Crookshank's theory as 'utter trash'; Crookshank was actually an important influence on

Penrose (Crookshank, it may be remembered, had previously adopted a genetic and environmental interaction theory for the occurrence of Down's syndrome).

The next stage of Penrose's investigations was to subject the evidence for an environmental role in aetiology to scientific test. He did not consider Clark's theory of hyperthyroidism, but instead began by examining the early theory of 'reproductive exhaustion', which provided a model to explain the birth of a child with Down's syndrome to both young and older mothers. In young mothers it had been proposed that various 'toxic influences' brought about the reproductive exhaustion.

Penrose first examined the history of some of the younger mothers of children with Down's syndrome<sup>36</sup> and must have believed that he had found some evidence of the action of toxic influences when he discovered that four of these mothers had all worked together at a boot factory between leaving school and getting married. Investigating the cases further he found that not only had they all carried out exactly the same job - making uppers of shoes, but had eaten their lunch off the very same bench.

The factory burnt down in 1908 and the four women subsequently married. The first child of each of the four mothers died young: one of spina bifida, another at birth, another was born dead and another died of

pneumonia aged one year. In addition, all the mothers gave a history of menstrual irregularities before marriage.

Penrose attempted to interpret this information in terms of the theory:

The possibility of the similarity in these histories having any significance seems to depend upon establishing a possible source of poisoning, which could have affected all these four women at their occupation without their knowing it, and whose effects were to produce some permanent or progressive change in the reproductive powers. The agents could have acted directly on the germ cells or on the system generally so as to produce some kind of premature senility or incompetence on the part of the maternal uterine functions. The occurrence of menstrual troubles in these women while they were working at the factory, if it has any significance at all, tends to support the latter view. In a boot factory the leather is already tanned and dressed before it arrives. There are a few poisonous chemicals used in leather (eg. arsenic is used in patent leather) and it is just possible that some unknown substance may have got onto the bench and been eaten by these women with their lunch.<sup>37</sup>

The following year (1932) Penrose published a  
38  
paper on the syndrome which contained his view that not only was 'Mongolian imbecility' caused by a combination of genetic and environmental factors, but so were many other human characteristics and problems.

He had therefore already (before examining the evidence that an increased risk for Down's syndrome was associated with raised maternal and not raised paternal age) made the assumption that the earlier theorists were correct in interpreting the association between Down's syndrome and advanced maternal age (and the apparent association between Down's syndrome and toxic influences) as a result of a deterioration in the

mothers' reproductive powers. This is also apparent from Penrose's correspondence with Ronald Fisher,<sup>39</sup> a British population geneticist, who had been interested in the problem of people with mental deficiency for some years (in 1924 he had stated his belief that segregation or sterilization of all the feeble-minded would produce a thirty-six per cent reduction in its incidence in one generation). His letter to Fisher on the 15th November 1932 reveals that he was already working on the problem of distinguishing between the effects of maternal age and birth order, having clearly dismissed completely the possibility that raised paternal age was a risk factor for Down's syndrome.

In 1933, Penrose published some statistical work he had carried out, which he believed justified the elimination of raised paternal age in causation.<sup>40</sup>

Having collected data on parental ages in one hundred and fifty families which contained a child with Down's syndrome he subjected them to a mathematical technique he had devised for the purpose. First, he calculated the mean age of the fathers at the birth of the child with Down's syndrome. He then calculated the mean age of the mothers and fathers at the birth of unaffected children. He then worked out the difference between the mean ages of the mothers at the birth of children with Down's syndrome and those with unaffected children, and the standard error of this difference.

From this he concluded:

It is obvious that maternal age is of significance because the difference is ten times the standard error.<sup>41</sup>

However, he did not record the similar calculations for paternal age; below are my workings of Penrose's data.

Mean age of father at the birth of a child with Down's syndrome = 39.383 years.

Mean age of father at the birth of a child without Down's syndrome = 33.830 years.

Difference between the means = 5.553 years.

Standard error of the difference = 0.697  
(approximately one eighth of the difference between the means.)

It could have been concluded from these calculations that it was obvious that paternal age was of significance because the difference is eight times the standard error. However, Penrose's intention was clearly to prove that paternal age was of no significance. He, therefore, estimated, using the regressions, the expected mean paternal age for the children with Down's syndrome and for the children without Down's syndrome assuming that the maternal ages were fixed. Similarly, he estimated the expected mean maternal age for children with Down's syndrome and for children without Down's syndrome assuming that the paternal ages were fixed.

He found that there was little difference between

the expected and observed mean paternal age differences for children with and without Down's syndrome, but that the observed mean maternal age difference for children with and without Down's syndrome was about two years more than the expected difference.

He concluded from this:

There can be little doubt, judging from these results, that the father's age is an insignificant factor in the aetiology of mongolism, the emphasis being entirely on the age of the mother.<sup>42</sup>

Such a conclusion could not justifiably be made from these results. Raised maternal age appeared from the analysis to possibly be a more significant risk factor than raised paternal age, but no more than this could be said.

Surprisingly, neither Kevles, nor Smith and Berg question the unrealistic certainty with which Penrose stated his conclusions about parental age: Kevles writes:

Although Penrose was unable to clarify the causes of Down's syndrome completely, his conclusions about its dependence on maternal age...rapidly came to be recognized as such.<sup>43</sup>

And Smith and Berg state:

He also demonstrated that while paternal and maternal ages are correlated it was only the maternal ageing factor that was significant in mongolism.<sup>44</sup>

The main reason for their uncritical acceptance of Penrose's work on parental age is probably that his evidence came from a statistical test and was therefore immediately considered to be of high value.

Penrose's findings from his investigations of

Down's syndrome exerted some influence on the report of the Joint Committee on Mental Deficiency the following year. This was a British government committee, headed by Lawrence G. Brock and including Fisher, Ruth Darwin, Lewis and Tredgold which had been set up in 1932 to consider the sterilization issue.<sup>45</sup> His explanatory framework for Down's syndrome and other human genetic conditions had the potential to weaken the case both for the sterilization of the feeble-minded and their families. In the case of the 'feeble-minded', he demonstrated that none of the people with Down's syndrome had defective parents, and also that the majority of 'defectives' were born to 'normal' parents who were apparently "carriers"; therefore the sterilisation of 'defectives' would not substantially alter the number of defectives who were born in a population. In the case of the families the possibility that adverse environmental factors had to be present before the offspring of "carriers" were born abnormal, suggested that there might be a huge number of carriers in the population, and also that in order to prevent degeneracy the need was for an improvement in living conditions rather than the sterilisation of those who might be carrying a gene for a condition like 'mongolism'.

The fact that Penrose's model of Down's syndrome did not support the case for sterilisation is not

surprising when one considers that it was largely derived from Herbert Jennings's work (and this, in fact, directly countered Fisher's argument for the sterilization and segregation of the feeble-minded) in his book The Biological Basis of Human Behaviour.

As the table below shows Penrose and Fisher were considering quite different things.

Table 4: Different Models of the Occurrence of the Feeble-minded based on different assumptions

Individual devising model of the occur- rence of the feeble- minded.	PENROSE	JENNINGS	FISHER
Intelligence of the parents	NORMAL	NORMAL	FEEBLEMINDED
Mating	RANDOM	RANDOM	ASSORTATIVE
Form of inheritance	TWO DOMINANT GENES	SINGLE GENE	POLYGENIC
Role for environment in determining the condition of the off- spring ?	YES	YES	NO

One could, perhaps, not find a better example, than these models of the occurrence of the feeble-minded, of how personal beliefs about a social question, in this case sterilization, can determine the way in



which a scientific question is investigated.

It must be said, however, that the majority of the committee were not convinced that the environment did have a potent role in determining whether a baby was born with one of the forms of 'mental deficiency'. Lewis and Tredgold both viewed poor environmental living conditions as the result, and not the cause of mental deficiency. They supported this argument by the apparent evidence that the incidence of 'mental deficiency' was 50% higher in rural areas than towns; as there were naturally healthy conditions in the country, if the environment determined the occurrence of handicap the incidence of mental deficiency should have been less in rural areas, not more.<sup>46</sup> These incidence rates, however, obviously proved very little without exact figures relating to other demographic features of the population: infant mortality rates in town and country; migration rates etc. Not even tentative conclusions could be drawn from them unless these figures were available.

Lewis also argued that where the slums had been cleared up and their residents removed to good houses in sanitary surroundings, they soon recreated all the conditions of 'slumdom'.<sup>47</sup> The cause of slums was thus not decaying buildings, overcrowding, pest infection, rusty water pipes etc. but the degeneracy of their residents. Both Tredgold and Lewis failed to mention the

possibility that these people 'in their good homes' were probably frequently unemployed and living in extreme poverty with large families to support. Such hardship was a consequence of the devastating depression throughout America and Europe which followed the plummeting of the American stock market in 1929. Certain British towns had really been hit hard because the unemployment was highly localised (large firms on which an area had depended had laid off its workers). For example, in 1933 the unemployment rate in Jarrow had reached 80%, and in 1934, 70% of the work force in Merthyr Tydfil were out of work. There was, of course, the 'dole' to fall back on but this involved being subjected to humiliating procedures before any money could be drawn, and when it was handed out the money was completely inadequate to provide more than the barest standard of living. It was enough for survival, but no more. As a result, the conditions in which people had to live were very bad and it was almost impossible for them to maintain their basic dignity and self-respect.<sup>48</sup>

Under these economic circumstances, Tredgold's and Lewis's remarks are probably best interpreted as a form of 'blaming the victim'; their conception of handicap required that the authorities were to be seen as having made every effort to help these degenerate members of society, but now it was necessary to point to the designated victim as the source of evil and threat. This, in turn, required that it was time for the

responsible physician to take the matter in hand and deal with those who were endangering the 'good', 'healthy' people.

In order to prevent the occurrence of primary amentia, including 'mongolism' (even in the case of Down's syndrome, Tredgold still claimed to have found that about 25% of the families had members who were suffering from other psychopathic conditions)<sup>49</sup> Tredgold believed that voluntary sterilisation of certain selected defectives (those at large in the community) would be a useful measure, and that potential carriers should also be subjected to similar treatment. Compulsory sterilisation was not recommended by the committee, however, partly because of the disagreement over the mode of occurrence of 'mental deficiency', and partly because such a proposal would arouse public hostility. In 1931 and 1932 the Eugenics Society had already introduced two bills into Parliament to legalize voluntary sterilization, but these had not even received formal consideration. The report of the committee was taken up by this society and used as a means of renewing their campaign for sterilization. Kevles notes that this campaign was "joined by mental-welfare workers who believed that the mentally deficient capable of caring for themselves ought to be permitted to live in the general community."<sup>50</sup>

The fact of the matter was that these people were

already living in the community because the money had not been supplied to provide institutional care. Sterilization was a cheap way of dealing with the problem of their reproduction, and more sinisterly it was even a possible way of dealing with large numbers of people who were drawing unemployment benefit - the "parasitic class",<sup>51</sup> as Tredgold termed them.

In the House of Commons voluntary sterilization was denounced as anti-working class. The question was raised, too, of what "voluntarism" would mean in the case of the mentally deficient. The move to legalise eugenic sterilisation was completely unsuccessful because of scientific, political and religious opposition, as well as reports of the excesses of the Nazis.<sup>52</sup>

Just six months after Hitler had come to power in 1933, the first sterilisation law had been passed which contained within its scope the congenitally feeble-minded (it was estimated that 200,000 feeble-minded people would be sterilised under the law). Special Hereditary Courts had been set up to make decisions on sterilisation and all physicians were legally required to report any one who was "hereditarily sick". In the case of mentally deficient women the law provided an option for removing the entire uterus. Discussions had been also held about the advisability of sterilising anyone who might be a carrier. Fritz Lenz, a German physician-geneticist had suggested that anyone with the

slightest signs of mental disease should be sterilised.

The mentally deficient, themselves, had been regarded as urgent cases and the possibility of appeals against the decision of a sterilisation court being successful had been very small. A similar process to that which Kerr had advocated should take place in Britain had thus, in a very short time, been accomplished. In addition, the Nazis put into practice the system of national records which Tredgold stated was a necessary prelude to the implementation of marriage restriction laws. They set up a national card index of people with hereditary taints, through the work of special institutes for hereditary biology which were set  
53  
up at certain universities.

The scientific theories which were used to legitimate these measures did not differ significantly from those accepted in Britain and America.

Tredgold continued to support the concept of voluntary sterilization and marriage restriction laws in spite of the Nazi excesses. The marriage laws, he considered, had "on the whole...been productive of good, and have not only helped to educate the conscience of the community, but have prevented many undesirable  
54  
marriages."

In addition, he wrote in 1937:

Exposure of defective and deformed children was, in fact, practised by some of the ancient civilizations; and it may reasonably be argued that in the case of low-grade idiots and imbeciles this was more humane than our

present method of allowing them to linger through many years of depraved and useless existence. It is probable that the community will eventually, in self-defence have to consider this question seriously.<sup>55</sup>

These were prophetic words. Two years later the systematic killing of defectives was to begin in Nazi Germany on the pretext that it was kinder to end their lives. 'Mongolism' was one of the conditions which had to be reported by the midwife or doctor (initially the requirement was only to report children up to the age of three, later older children and adolescents had also to be informed on). Following the report the affected child was transferred to a designated killing centre. Once there, sometimes the policy was to give a drug which would lead to coma and death in a few days, and sometimes the policy was gradually to decrease food and  
56  
thus avoid wasting medication.

It is clear that what made the mass sterilisation and killing of defectives possible in Germany, but not in Britain and America, was not the existence of different scientific theories, or a different type of psychiatrist, but the fact that the all-powerful leader of the State, Adolph Hitler, wished these methods to be used to destroy the weak and helpless.

### Conclusion

Lionel Penrose's conception of Down's syndrome was, in part, a product of the degeneration paradigm which viewed all abnormal people as members of degenerate/psychopathic stock, and, in part, a

consequence of his assumption that genetic and environmental factors interacted in the causation of all mental disease.

Not all of his contemporaries in the 1930s, including Tredgold, accepted that the environment always played such an important aetiological role; and they took the view that it would be very much in the interests of society to sterilise all possible carriers of conditions like Down's syndrome. In Nazi Germany this view was put into practice, and the subsequent, horrific consequences destroyed arguments for similar measures to be introduced in Britain.

Penrose's theory that advanced maternal age and not advanced paternal age was an important element in the aetiology of Down's syndrome remained largely unchallenged in Britain until the 1980s. An understanding of the climate in which it was devised is an important contribution to the debate over this question which still continues today.

#### CHAPTER NINE: NOTES

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4. For a brief discussion of the testing movement in America see M. Rosen, G. R. Clark, M. S. Kivitz "Section Five" in The History of Mental Retardation. Collected Papers, eds. M. Rosen et al. (Baltimore: University Park Press, 1976) pp.327-8.
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6. K. Jones A History of the Mental Health Services (London: Routledge & Kegan Paul, 1972) p.208. The writer of Shuttleworth's obituary reports that even while lying close to death, Shuttleworth "expressed his satisfaction at the amended Mental Deficiency Act." ("Obituary. G. E. Shuttleworth" B.M.J. i (1928): 1004.) An act which had come in for fierce contemporary criticism because it increased the number of people compulsorily detained.
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22. L. Penrose "A Contribution to the Theory of Definition - with Special Reference to Mongolism", unpublished, 1932. Penrose File 61/1.
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38. L. Penrose op. cit. note 25.
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42. Ibid. p.223.
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44. G. F. Smith and J. Berg op. cit. note 3 p.538.
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46. A. F. Tredgold A. Text-book on Mental Deficiency 6th edition (London: Baillière, Tindall & Cox, 1937) p.521.
47. Ibid. p.522.
48. The psychological effects of unemployment during this period are vividly portrayed in a number of novels. For example George Orwell Down and Out in Paris and London (London: Penguin, 1969) and W. Greenwood Love on the Dole (London: Penguin, 1969).
49. A. F. Tredgold op. cit. note 46 p.210.
50. D. Kevles op. cit. note 5 p.167.
51. Op. cit. note 46 p.525. One British biologist proposed compulsory sterilization as a punishment for parents who had to resort to public assistance in order to support their children. D. Kevles op. cit. note 50 p.114.
52. D. Kevles ibid. pp.166-9.

53. The Nazi sterilization laws are described in detail by R. J. Lifton The Nazi Doctors (London: PAPERMAC, 1987) pp.22-44.

54. A. F. Tredgold op. cit. note 46 p.523.

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56. The Nazi 'euthanasia' programme is also described by Lifton op. cit. note 53 pp.45-147.

## CHAPTER TEN

### ADRIEN BLEYER'S PREMATURE DISCOVERY

Adrien Bleyer (1879-1965) was born in 1879 in St. Louis (and died there 86 years later). He received his medical degree from the Missouri Medical college in 1899, and after the then-customary two-year internship, he began a distinguished career in pediatric practice and teaching at the St. Louis Children's Hospital and the Washington University School of Medicine. He served as president of the St. Louis Pediatrics Society, director of the St. Louis Pure Milk Commission, editor of the Washington University Medical Bulletin, and captain of the children's bureau of the Red Cross in France during World War 1; in addition, the establishment of the first infant welfare clinic in the United States was credited to him. He was best known, however, among his colleagues for his interest in Down's syndrome.<sup>1</sup>

#### Bleyer's concept of Down's syndrome

Adrien Bleyer proposed in 1934<sup>2</sup> that Down's syndrome was the result of an abnormal number of chromosomes on one of the two gametes from which the person with Down's syndrome develops. This, of course, is the explanation which is accepted today for the majority of people with Down's syndrome.

Bleyer was, in fact, not the first person to propose this theory of Down's syndrome. P. J.

Waardenburg, a Dutch ophthalmologist and lecturer in Medical Genetics at the Universities of Utrecht and Leiden, had suggested two years earlier (1932) in a monograph on the human eye that Down's syndrome resulted from a chromosome aberration due to non-disjunction.<sup>3</sup> However, there was no suggestion at all in Bleyer's work that he had arrived at the same conclusion through reading Waardenburg's monograph, and in this thesis which focuses on Down's syndrome in the United Kingdom and the United States Adrien Bleyer's work, rather than Waardenburg's, will receive the attention. Certain questions naturally arise over Bleyer's formulation of this theory. Why did he arrive at this causation hypothesis in America in 1934 when other contemporary investigators of the syndrome did not? How did his reasoning differ from theirs?

I shall attempt to answer these questions by comparing and contrasting some of Bleyer's work with other theorists, who recognized because of twin studies, that Down's syndrome must be germinal in origin.

One point of similarity which is present in Bleyer's and these other investigators' work was the belief that raised maternal and not raised paternal age was a risk factor for Down's syndrome, and I shall begin my analysis by looking more closely at how they all arrived at this conclusion, and how their beliefs about the role of raised maternal age influenced their theories.

BRITISH AUTHORITIES	ARMSTRONG <sup>4</sup>	PENROSE <sup>5</sup>
HOW DID THEY BELIEVE DOWN'S SYNDROME WAS CAUSED ?	A MATERNAL INFLUENCE IS EXERCISED UPON THE OVUM DURING ITS MATURATION.	SEE CHAPTER NINE.
HOW DID THEY ARRIVE AT THE CONCLUSION THAT MATERNAL, AS OPPOSED TO PAT- ERNAL AGE, WAS INVOLVED IN CAUSATION ?	1. THERE WAS NO EVIDENCE THAT CHILDREN OF ELDERLY MEN TEND TO MONGO- LISM OTHER THAN WHEN THEIR WIVES ARE APPROACHING THE MENOPAUSE. 2. THEORIES OF REPRODUCTIVE EXHAUSTION.	SEE CHAPTER NINE
WHAT PROBLEMS ARE THERE WITH THEIR METHODS OF DISTINGUISHING BETWEEN THE POSSIBLE EFFECTS OF RAISED MATER- NAL AND RAISED PATERNAL AGE ?	1. THERE WAS NO REAL EVIDENCE THAT THE MENO- PAUSE WAS REL- ATED TO THE ASSOCIATION BETWEEN RAISED PARENTAL AGE AND THE OCCURR- ENCE OF DOWN'S SYNDROME. 2. SHUTTLEWORTH'S THEORY OF REPRO- DUCTIVE EXHAUSTION WAS LARGELY SPECU- LATIVE.	SEE CHAPTER NINE.
IN WHICH YEAR DID THEY A. PUBLISH THEIR THEORY OF THE CAUSATION OF DOWN'S SYNDROME ?	1928	1932
B. REACH THE CONCLUSION THAT RAISED MATERNAL AGE AND NOT RAISED PATERNAL AGE WAS INVOLVED IN CAUSATION ?	1928	1931/32

Table 5: The Role of Raised Maternal Age

AMERICAN AUTHORITIES	JENKINS <sup>6</sup>	ROSANOFF & HANDY <sup>7</sup>
HOW DID THEY BELIEVE THAT DOWN'S SYNDROME WAS CAUSED ?	A DIMINISHED VIABILITY OF THE OVUM	TISSUE CHANGES IN THE OVARIES IE. SCARRING DUE TO PAST OVULATION.
HOW DID THEY ARRIVE AT THE CONCLUSION THAT MATERNAL, AS OPPOSED TO PATERNAL AGE WAS INVOLVED IN CAUSATION ?	STATISTICAL ANALYSIS.	STATISTICAL ANALYSIS.
WHAT PROBLEMS ARE THERE WITH THEIR METHODS OF DISTINGUISHING BETWEEN THE POSSIBLE EFFECTS OF RAISED MATERNAL AND RAISED PATERNAL AGE?	ANALYSIS RESULTS ONLY SHOW THAT PATERNAL AGE IS NOT THE DETERMINING FACTOR. PATERNAL AGE MAY OPERATE AS A CAUSAL FACTOR AT A LATER AGE THAN MATERNAL AGE.	PATERNAL AGE MAY OPERATE AS A CAUSAL FACTOR AT A LATER AGE THAN MATERNAL AGE. THEY CONSIDER A VERY SMALL NO. OF CASES.
IN WHICH YEAR DID THEY A. PUBLISH THEIR THEORY OF THE CAUSATION OF DOWN'S SYNDROME ?	1933	1934
B. REACH THE CONCLUSION THAT RAISED MATERNAL AND NOT RAISED PATERNAL AGE WAS INVOLVED IN CAUSATION?	1933	1934

Table 6: The Role of Raised Maternal Age

## AMERICAN AUTHORITY

8  
ADRIEN BLEYER

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WHAT VIEWS DID HE  
HOLD ON THE CAUSA-  
TION OF DOWN'S  
SYNDROME ?

---

HE BELIEVED THAT DOWN'S  
SYNDROME WAS CAUSED BY  
'A GAMETIC MUTATION OF  
THE DEGRESSIVE TYPE'

---

HOW DID HE ARRIVE  
AT THE CONCLUSION  
THAT RAISED MATER-  
NAL, AS OPPOSED TO  
RAISED PATERNAL  
AGE WAS INVOLVED  
IN CAUSATION ?

---

BY REFERENCE TO THE  
'AUTHORITATIVE OPINIONS'  
OF ARMSTRONG, JENKINS,  
PENROSE, ROSANOFF AND  
HANDY.

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IN WHICH YEAR DID  
HE A. FORMULATE  
HIS THEORY OF THE  
CAUSATION OF DOWN'S  
SYNDROME?

1934

B. REACH THE CONC-  
LUSION THAT RAISED  
MATERNAL AND NOT  
RAISED PATERNAL AGE  
WAS INVOLVED IN  
CAUSATION?1938

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Table 7: The Role of Raised Maternal AgeDiscussion

One significant difference does emerge from a consideration of Bleyer's and the other contemporary investigators' work. This was that Bleyer was the only person who arrived at his theory of Down's syndrome before he came to the conclusion that raised maternal and not raised paternal age increased the risk of having a child with Down's syndrome. Penrose, it may be remembered, had already assumed that raised maternal age was the environmental component in his model of causation (his analysis to distinguish between raised



maternal age and raised paternal age simply served to confirm this). The other theorists all formulated their concepts of Down's syndrome at the same time as they considered parental age so that they were attempting to explain the way in which raised maternal age exerted its influence while they also tried to demonstrate that it was of fundamental importance in causation.

The belief of Armstrong, Jenkins, Rosanoff and Handy that paternal age could be completely eliminated as a risk factor stemmed in part from contemporary ideas about the menopause in men and women. Quite simply, women were known to undergo a menopause as demonstrated by their ceasing to menstruate, but no similar hormonal changes were believed to occur in men when they reached a similar age (a change in androgen levels does, of course, occur as a result of ageing in the male, and prostate gland enlargement, for example may occur as a consequence). Such ideas about the lack of 'sexual ageing' in the male were probably responsible for the popular belief that it was safe for men to continue to produce children until they were well into old age.

Another reason for the readiness to discount the possibility that raised paternal age could be involved in the causation of the syndrome was the existence of late nineteenth and early twentieth century theories of Down's syndrome which purported to show that

that there was only an association between maternal age and Down's syndrome. A closer examination of these (see table) would, of course, have shown that they had no basis for their assumption that raised paternal age was not related to Down's syndrome; the possibility had not even been considered. Probably the main explanation for the belief of the early theorists that the father was in no way responsible for offspring was the association with high birth order. It appeared logical to conclude that repeated childbearing had in some way damaged the mothers' capacity to supply the foetus in the uterus with everything it needed to complete its development.

EARLY THEORISTS WHO INCORPORATED RAISED MATERNAL AGE  
IN THEIR THEORIES OF THE OCCURRENCE OF DOWN'S SYNDROME

THEORIST	9 MITCHELL	10 BERTRAM HILL	11 SHUTTLEWORTH
DATE THEORY WAS PUBLISHED	1876	1908	1909
BELIEFS ABOUT INHERI- TANCE OF DOWN'S SYNDOME.	HE DID NOT CON- SIDER IT TO BE AN INHERITED CONDITION.	CAUSED BY DE- PRESSING INFLUENCE DURING GESTATION.	BELIEF THAT ENVIRONMENTAL CAUSE COULD ADVERSELY AFFECT THE MATERNAL REP- RODUCTIVE POWERS.
WAS THE POSSIBILITY CONSIDERED THAT RAISED PATERNAL AGE MIGHT BE A CAUSA- TIVE FACTOR?	ONLY ONE CASE OF (VERY) ELEVATED PATERNAL AGE WAS CONSIDERED BUT ALL CASES OF RAISED MATERNAL AGE WERE RECORDED.	NO, BUT THE PATERNAL AGES IN HIS OWN SERIES OF EIGHT CASES WERE RECORDED IN HIS PAPER.	NO, PATERNAL AGES WERE NOT EVEN NOTED IN THE PAPER, ALTHOUGH THEY WERE AVAIL- ABLE TO HIM FROM THE DATA AT THE ROYAL ALBERT ASYLUM.
IF NOT, WHY NOT ?	A ROLE OF RAISED PAT- ERNAL AGE WAS NOT COM- PATIBLE WITH HIS APPARENT EVIDENCE ABOUT THE NATURE OF THE MOTHERS' PREGNANCY.	A ROLE OF RAISED PATERNAL AGE WAS NOT COMPATIBLE WITH HIS VIEWS ON AETIOLOGY.	A ROLE OF RAISED PATERNAL AGE WAS NOT COMPATIBLE WITH HIS VIEWS ON AETIOLOGY.

Table 8.

Perhaps the main reason that Bleyer did not believe that it was necessary to accord a particular role to raised maternal age in his concept of Down's syndrome was that he was familiar with the aetiological conclusions about it argued by Kate Brousseau, a Californian psychology professor. Her book, summarising the earlier theories about the syndrome, had been published in America in 1928. In it she questioned a number of the observations which had been made about the mothers of children with the syndrome; she stated that Mongolian imbeciles were neither due to extremes of age in one or both of the parents, nor to late birth order, mental strain of the mother, to some disease of the maternal reproductive organs, nor to undernourishment or overwork of the mother during pregnancy. It is probably very significant that she was the first woman to make an in depth study of the syndrome (she would probably have been sceptical about theories which attempted to blame her own sex for the occurrence of a particular type of abnormality).<sup>12</sup>

In addition, again influenced by Brousseau, Bleyer <sup>✓</sup> had rejected completely Crookshank's notion that the parents of people with Down's syndrome had some inherent susceptibility to Down's syndrome. Brousseau believed that the evidence showed that the family history of people with Down's syndrome generally showed no signs of mental deficiency.<sup>13</sup>

Bleyer had also obtained evidence for himself that Crookshank's theory that people with Down's syndrome and their parents bore some anthropological relationship to the Mongolian race was not a valid one. Crookshank's belief in a polyphyletic scheme of human descent which postulated both a separateness in development of the human races and a closer relationship between the human races and certain anthropoid apes than with each other, made it impossible for him to accept that Down's syndrome could occur in a Negro or a white person who did not have some 'Mongolian blood'.<sup>14</sup>

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Bleyer had, however, found two Negro infants, whom he believed to have Down's syndrome. One of these was a five month old girl whom he saw at the North Seventh Street Welfare Station in Saint Louis. He diagnosed her as "a mongolian idiot by the following items which are taken from the clinic notes: slant eyes with narrowed fissures; flat epicanthic fold; egg face; tiny ears; small, round mouth and nose; markedly redundant folds of neck and elsewhere; spatulate stubbed fingers and general muscular relaxation with open navel."

Her parents were said to have "staunchly disavowed...any possibility of admixture of white blood at any time" but Bleyer acknowledged that this "of course, must be taken for what it is worth" (Bleyer's treatment of the poor at this welfare station was only a small part of the work he carried out for

underprivileged mothers and infants).

The second infant seen at the St. Louis Children's Hospital where Bleyer taught and practised was diagnosed as having Down's syndrome on the basis of "a widely open fontanel, narrowed palpebral fissures with definite mongolian slant, and broad flat space between the eyes; the tongue was enlarged, and the teeth were in bad condition. There was an asymmetrical and poorly formed chest and an enlarged abdomen with open navel, which appeared to be part of of a marked hypotonia of the muscles and general relaxation of the capsular ligaments. Curvature of the little finger, as occasionally noted in mongolian idiots, was present."

Bleyer's publishing of these classic characteristics would appear to have been indisputable proof that Down's syndrome could occur in any race, but Crookshank in characteristic manner was able to devise an explanation for Bleyer's observations and so defend his theory.

In fact, Crookshank came up with three possible reasons in harmony with his theory which could account for reports that 'mongolism' could occur in American Negroes: first, was simple misdiagnosis; second, was Mongolian or white ancestry; and third was pseudomongolism (American Negro people of this type, Crookshank believed, originally came from parts of Eastern and Central Africa where ancient commercial

exchanges with Turkestan were indicated to have happened by archaeological data). He considered, specifically, Bleyer's second case (of which he had a photograph) to be an "instance of Ethiopian idiocy in the Negro, for no single feature definitely characteristic of mongolism is present." By this Crookshank says he meant one of John Langdon Down's Ethiopian types whom he had referred to in his 1866 ethnic classification.<sup>16</sup> However, this was rather illogical as Down's 'Ethiopian idiots' had been English and they could, therefore, not possibly have existed within Crookshank's polyphyletic scheme of descent; Crookshank probably believed that Bleyer's case was a reversion to an ancestor of the 'Negro type'.

Crookshank went to great pains too to disprove Bleyer's diagnosis of his second case commenting that:

Nothing is said about the head-form, while the eyes do not display the true Mongolian fold, although showing the vertical epicanthus so often seen in young negroes and chimpanzees. The mouth and nose appear cretinoid. So, as a rule, is the presence of a big belly with umbilical hernia. The curvature of the little finger is irrelevant: it is as common in normal negro children as in imbecile mongoloids.<sup>17</sup>

The first case, however, presented a bigger problem for Crookshank. Not only had Bleyer described the classic characteristics of Down's syndrome, but had sent him photographs of the child's hands, which were also typical of the person with Down's syndrome. Crookshank responded by stating that the hands were not really typical as Bleyer supposed, because the fingers were "almost equal length, in this respect closely

resembling the hands of a young gorilla, the great ape  
homologous to the Negro."<sup>18</sup>

Crookshank added, too, that such a small number of apparent instances of 'mongolism' in Negroes could prove very little.

Bleyer responded in 1932<sup>19</sup> to the criticisms of Crookshank by stating that he had now found eight 'Negro mongoloid imbeciles' and that "there would appear to be no reason to suspect that this disease is any less frequent among Negroes than among white persons and this doubtless applies as well to members of any other race."

He also stated that Crookshank's anthropological theories did not "coincide with present views concerning the origin of man" and that anyway it was illogical to believe that people with Down's syndrome did owe their origin to types prevailing in the tertiary period because of the dilution point their occurrence would now have reached; on the contrary, Down's syndrome was a common disease.

Thus, Bleyer, having arrived at the conclusion that people with Down's syndrome did not occur because of their parents' ancestry, and that they differed from their 'normal' parents in numerous ways (as he put it, "looking at mongoloid imbeciles is like looking at the stars; the more one looks, the more one sees...Certainly the more one studies these persons, the less one is able to find anything normal about them"),<sup>20</sup> unlike other contemporary investigators, simply sought to explain



what he saw.

The question therefore becomes: why did Bleyer having accurately perceived the occurrence of Down's syndrome as he did, manage to recognize the link between Down's syndrome and non-disjunction?

And the answer to this question is that once Bleyer had recognized the germinal origin of Down's syndrome he took the very enterprising, albeit logical step of seeking to familiarize himself with the specialised knowledge from the subject discipline which dealt with abnormalities of the germinal cell - cytogenetics. And in particular, he studied the genetics text by Herbert Eugene Walter, which described both the process of non-disjunction and the formation of translocations, and their relationship to 'mutants'.

There was one particular 'mutant' which Bleyer recognized was analogous to Down's syndrome. This was the variety of the flower 'Evening Primrose', which had first been observed by the nineteenth century Dutch plant breeder, Hugo de Vries, and was then known to result from non-disjunction. De Vries called this plant a degressive mutation because it not only differed significantly from the plant it was bred from (his criterion for a mutation) but was also "defective...and incapable of reproducing itself" (his definition of degressive. 'Progressive' mutations, de Vries believed, resulted in a new viable species and was how evolution

occurred.). These were all features which Bleyer considered characterised Down's syndrome.

Bleyer's analogues were quite extraordinary because at the time genetics and medicine were quite separate fields, but what makes his deductions from his cross-disciplinary analysis all the more remarkable was that he had received his medical degree from the Missouri Medical College as long ago as 1899,<sup>21</sup> so that he obviously had not received even the most basic grounding in cytogenetics during his higher education.

It was this general lack of knowledge of genetics by practising physicians in the early part of the twentieth century, and conversely, the lack of experience of people with chromosomal abnormalities by geneticists who experimented on insects and animals with short generation periods, which, in part, explains why the cytological reason for Down's syndrome was not understood before. It should be said, too, that there was little evidence that the genetics of plants and flies could be concluded to be of the same type as that of man.

Non-disjunction had actually been recognized as responsible for 'mutants' as long ago as 1913<sup>22</sup> by Calvin Bridges who was working in the *Drosophila* laboratory of Thomas Hunt Morgan at Columbia University, New York City.

Bridges had initially been employed as just a bottle washer. He had taken the job immediately after

finishing his undergraduate course because he was in need of money, but his worth was apparently recognized when he spotted an orange-eyed 'mutant' fly in a bottle he was just about to wash, the significance of which had been missed by Dr. Sturtevant, another geneticist there, who was colour blind. He was subsequently allowed to begin some experimental work and it was not long after<sup>23</sup> that he discovered the process of non-disjunction.

It might, however, have been expected that Penrose being much more recently and scientifically trained than Bleyer, and with so many people with Down's syndrome at the Eastern Counties Institution, would have recognized the possible link between Down's syndrome and non-disjunction, but Penrose was more interested in quantitative problems than cytology and had made the assumption that the only effective way to study 'germ<sup>24</sup> plasm' in human beings was to investigate families and that genes and the environment interacted in the determination of almost all human characteristics (as they do, of course, in quantitative characters like intelligence.) In these respects, Penrose and Bleyer personified to a certain extent the different approaches and strengths of genetics in Britain and America; Penrose's work followed the biometric tradition of Galton, Pearson and Fisher, while Bleyer's reflected the experimental approach so strongly developed in America.

The initial non-acceptance of the theory that Down's syndrome was a result of non-disjunction

One of the main reasons that it was not subsequently recognized that Down's syndrome was the result of non-disjunction was simply that Bleyer's hypothesis was difficult to test at the time.

This was partly because human chromosomes were difficult to see using the contemporary techniques and microscopes; man has twenty three pairs of chromosomes in each nucleus which appeared tangled together and undifferentiated from one another. The usual subject of experimental genetics, the fruit fly, has four large pairs of chromosomes.

Another difficulty was obtaining appropriate human tissue to establish the 'normal' number of human chromosomes which nuclei contain. Such tissue had to include many cells in the process of cell division, which was the only time that when chromosomes appeared as anything resembling separate bodies. The testes were organs where cell-division was constantly occurring but obviously the cells from them were only in optimum condition for cytology if they had been obtained from a man who had just been castrated. While such tissues may have been available in abundance from 'mentally deficient' patients given the readiness to castrate them for eugenic/control and management purposes few doctors would have been able to castrate a 'normal' patient just to provide material for cytological research. However,

sometimes one could be found who considered that this was a good enough reason to mutilate one of his patients. The cytologist, Theophilus Painter praised the physician, Dr. Cook of the Texas State Insane Asylum, who had three 'morally weak', but apparently physiologically normal patients castrated in order to provide material for research, commenting that Cook was "interested not only with the problems directly concerned with his profession, but also with the larger questions of the 'greater medicine, biology'". Painter, in fact, does seem to have had some conscience about the procedure commenting that "none of the patients exhibited any interest or excitement during the operation, nor did they show any signs of pain except when the vas deferens and the accompanying nerves were cut."<sup>25</sup>

The consequence of the chromosome testing problem was not, however, that the physicians lost interest in the syndrome. On the contrary, the fact that Bleyer's hypothesis had not actually been proven resulted in the continuance of much speculation about the condition. I do not intend to examine in detail all the work of every investigator of Down's syndrome in the nineteen forties and fifties, but merely to follow through some of the treatment consequences for people with Down's syndrome because of the conceptions of the syndrome and of mental handicap during this period. In order to do this I have

continued with the case-study approach and examined the work of just two men, the British authority whose early work has already been discussed, Lionel Penrose and an American physician, Clemens Benda, both of whom studied the syndrome during this period, and also rejected the theory that Down's syndrome was a consequence of non-disjunction.

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Clemens Benda (1898-1975) was born in Berlin on May 30th 1898 (just twelve days earlier than Lionel Penrose). Like Penrose, he chose to enter the medical profession, and to specialise in psychiatry. In 1922, he received the M.D. degree in Berlin and subsequently obtained a post as an assistant psychiatrist in Heidelberg; then in 1929 he was appointed as a neurologist in Hamburg, and concurrently edited the journal "Medizinisch Welt".

In 1935, just two years after Hitler had come to power, he was forced to emigrate to America with his wife and two children. He is listed in the International Biographical Dictionary of Central European Emigrés <sup>27</sup> (1933-1945) which contains details of the lives of 4,600 Hitler persecutees in the fields of arts, sciences and literature. The criterion for inclusion in this book is a common history of suffering which led to compulsory emigration from the sphere of power of Nazi Germany. The United States had begun to attract refugees like Benda from 1935 when Hitler's threat to Europe increased. Once in the United States, the Emergency Committee in Aid of

Displaced Foreign Scholars found jobs for refugees and in 1936, they arranged for Benda to receive a research fellowship in neuropathology at the Harvard Medical School, and also to become the Director of the Wallace Research Laboratory at the Wrentham State School, Massachusetts. It was at this school that he began his extensive investigations into Down's syndrome.

Benda began his studies of Down's syndrome having already made the assumption that it should be perceived as primarily a disorder of bone growth. Although he had examined some of the English (not that of Crookshank or Penrose), as well as the American theories of Down's syndrome, his reasoning was most influenced by certain early German workers who had made a study of abnormal human variations.

In particular, he had examined the theories of the Prussian-born statesman and scientist, Rudolph Virchow,<sup>28</sup> who had investigated 'cretinism' in the middle of the nineteenth century while professor of pathology and director of the Institute for Pathological Anatomy in Berlin. Virchow believed that the appearance of 'cretins' was a result of premature ossification of the base of the skull; he reasoned that if cartilage were lacking through premature synostosis then there was no possibility that the bones could grow, and a deep-set nose, protuding forehead and malformation of the orbit would appear.

Later, Virchow's theory was considered to have been invalidated by the discovery that 'cretinism' was dependent on hypothyroidism. Benda, however, noted that Virchow's 'cretinism' category consisted of more than one type, and one of these types which Virchow had described as degenerates with a close kindred of organization, Benda believed, was the mongoloid one.<sup>29</sup>

Benda used three methods to reexamine Virchow's hypothesis and also to investigate the bone growth in the person with Down's syndrome: "a clinical examination of the mongoloid appearance with measurements", post-mortem examinations and roentgenograms (which could determine the degree of ossification of various bones). While the former two methods had been available to the nineteenth century investigator, roentgenograms had not (X-rays, themselves, had only been discovered in 1895).

His clinical examination and post-mortem studies, he claimed, revealed that all the peculiarities of the 'mongoloid' appearance were related to a particular formation of the skull. He attributed the characteristic appearance of the eye in Down's syndrome, not to the eye itself, but to the configuration and position of the orbit. This was a far different conclusion from that of Bleyer who had observed that every part of the 'mongoloid' body including every organ was abnormal.

The roentgenograms showed that the ossification centres appeared early and Benda reasoned that it was the premature ossification of the base of the skull



limiting its growth in length more than its growth in width (the temporal and parietal bones known at this time to be formed in membrane) which explained the form of the skull.

He believed that he could now justifiably state:

Mongoloid deficiency is not a racial mutation but the result of a disturbance which becomes apparent during fetal development. The mongoloid appearance is due to a peculiar formation of the skull and has nothing to do with the Mongolian race or any kind of atavistic regression.<sup>30</sup>

The question, of course, is why he believed he could reach such a definite conclusion from his investigations; the evidence simply did not appear to be available to enable him to discount the possibility that 'mongoloid deficiency' was a result of a change having occurred in the germ plasm.

Having reached the conclusion that Down's syndrome was due to a disorder of bone growth, Benda began an investigation of the thyroid gland. The role of the thyroid in bone growth had previously been discussed by Sir Arthur Keith in, for example, his 1919 paper, "Studies on the anatomical changes which accompany certain growth-disorders of the human body"<sup>31</sup>. This gland had, as we have already seen, been traditionally considered to bear some relationship to the occurrence of Down's syndrome because of certain similarities between Down's syndrome and 'cretinism'.

There had, however, been few special post-mortem studies of the thyroid in Down's syndrome and Benda even

found contradictory opinions about the different types of goitre. Again he was influenced by the German workres for example Karl Wegelin, the expert pathologist in cretinism in the early twentieth century.

32  
Benda's own pathological studies of the thyroid glands of fourteen children aged between nine days and two years, he considered, showed histologic signs that could be regarded as indicative of hyperactivity or involutinal changes in the glands. The basis for this belief was his observations that the size of the acini, the colloid content, the growth of the epithelium and the development of connective tissue had progressed much further than would be expected. Although, of course, exophthalmic goitre was well known to be associated with hyperthyroidism, Benda had no concrete evidence that he was not observing a goitre which had developed as a result of hypothyroidism.

Animal models had shown that hyperadministration of thyroid to a growing organism had the effect of leading to irregular, early ossification and he speculated that mongolism might be a result of temporary excess of thyroid which affected that normal differentiation of the embryo. He claimed to be unaware of Clark's similar theory which, it may be remembered, was discussed in the previous chapter. He said of Clark's work:

Clark's papers are merely speculative; he did not support his ideas by clinical or pathologic

investigation. Although my own study supports the hypothesis of fetal hyperthyroidism in some ways, I do not believe that Clark's theory is sufficient to explain mongolism.<sup>33</sup>

Benda also made another deduction from his histologic studies of the thyroid gland - that the abnormality of the gland could be explained by the action of 'thyrotropic hormone' from the anterior lobe of the pituitary. It is probable that Benda's attention was drawn to the possible involvement of the pituitary gland in Down's syndrome by earlier investigators of the syndrome: W. Timme, a Massachusetts physician, reported that X-ray examination showed that there was an enlargement of the anterior part of the sella turcica; and M. B. Gordon had conducted a histologic study of two pituitary bodies from people with Down's syndrome and noted conspicuous eosinophiles and absent basophiles. Their investigations may have been prompted by nineteenth century post-mortems of cretins in which they were found to have abnormal pituitary glands: A. Niepce had reported in 1851 that enlargement of the pituitary occurred in cretinism and A. Schoenemann had published findings in 1892 that it was usually atrophied in this condition.<sup>34</sup>

Unsurprisingly, Benda's next investigation was of the pituitary body in the syndrome. After examining fourteen of these glands he concluded that "the pathologic changes of the pituitary body in mongolism are so definite that a normal picture at autopsy would

cast doubt on the diagnosis of mongolism".

Benda claimed to have found a very special type of alteration in the pituitary body - a definite deficiency of the basophilic system (previously observed by Gordon). Benda, however, did not credit Gordon with this discovery as he "did not discuss the significance of his observations."<sup>36</sup>

Benda speculated that the particular pituitary deficiency in Down's syndrome might be due to a pituitary deficiency of the mother during pregnancy. This, he reasoned, could explain the association between Down's syndrome and advanced maternal age. He also now advanced an explanation for why he believed that he could discount Bleyer's mutation theory. He wrote:

Embryology teaches that one must distinguish between morphogenesis and morphokinesis. Morphogenesis is the evolution and development of form; morphokinesis is the stimulation of such development. Morphokinetic factors influence the time at which development is carried on and produce the right rhythm. Morphogenesis is due to endogenous factors. The endocrine glands are a late ontogenetic acquisition regulating morphokinesis. The distinction between morphokinetic and morphogenetic factors, which may seem of only theoretic interest, is important in the determination of development disorders. The question arises: Is mongolism a morphogenetic monstrosity or a morphokinetic disturbance? If the former is true, and the presence of idiocy, epicanthal fold, slanting eyes and deformity of the skull is an accidental combination of various malformations, then mongolism is a monstrosity due to germinal deterioration and not to endocrine factors. Mongolism, as a monstrosity, would be completed before endocrine functions begin their influence.

On the other hand, if mongolism is a morphokinetic disorder, endocrine factors are of decisive influence... It may be kept in mind that in mongolism developmental deformities which point to the first months of fetal life are extremely rare. It is of importance to recognize that the earliest stages of development seem to pass without failure.

In summarizing the discussion, it may be emphasized that there is much evidence to indicate that in mongolism one deals with a morphokinetic abnormality due to an endocrine imbalance, and not with a morphogenetic monstrosity.<sup>37</sup>

Benda thus ignored, at this time, the very strong evidence from the twin studies that Down's syndrome was gametic in origin. In 1946, however, in his book, Mongolism and Cretinism,<sup>38</sup> he did turn attention to this crucial subject, which had so powerfully supported Bleyer's theory. He stated that it was now possible to dispel the belief that twin studies demonstrated that Down's syndrome was a consequence of a gametic mutation; he had studied the case histories of one instance of concordant twins (which had been published as a pair of identical twins by one investigator) and had found that the twins differed from one another in several respects. In addition, he claimed that there were four definite instances of dizygotic twins in which both had Down's syndrome. He did not, however, state any references to substantiate his conclusions. Mutation, he argued, was such a rare event that it could hardly be expected to occur simultaneously in two ova. His deductions from the twins studies were that they added weight to the theory that environmental factors were operating during the first few months of gestation; he suggested that if the deficiency of the mother which led to Down's syndrome in her offspring were very severe, both babies would be affected, while in a deficiency of moderate degree one twin may be spared while the other becomes abnormal. It

should be noted that other contemporary authorities did not interpret twin studies in the same way as Benda. Tredgold, possibly influenced by Bleyer (although he did not acknowledge him) stated his belief in the seventh edition of his Text-book of Mental Deficiency (1947) that Down's syndrome was a "pathological germ mutation". The results of twin studies, he believed, unquestionably supported this hypothesis.<sup>39</sup>

Shortly after completing his histopathologic studies Benda decided to subject his theory to experimental test using the children and young adults from the Wrentham State School.

In order to ascertain the role of the thyroid in 'mongolism' Benda measured cholesterol levels and basal metabolic rates, and to evaluate the pituitary function he conducted dextrose tolerance tests and measured blood sugar levels. He also determined the blood group distribution in order to test the hypothesis that people with Down's syndrome bore some relationship to the Mongolian race.

His investigations included taking blood through both venepuncture and finger pricking; several of the tests may have been upsetting to young children who did not understand what was happening to them. Dextrose tolerance tests, for example, involved taking triplicate samples of blood before the dextrose was given and then at half-hourly intervals for three hours. Therefore

twenty one samples of blood were taken in all from each child. Benda does not mention the childrens' reactions to these procedures.

Certain of the tests had already been carried out by someone else in the past which makes the value of repeating them questionable. His determination of the distribution of the blood groups was, of course, exactly the same investigation that had been carried out by Lionel Penrose in England seven years earlier. He had apparently now become aware of Penrose's results, but not the problems associated with his conclusions. The determination of the basal metabolic rate of the children with Down's syndrome had also been performed before with results which generally fell within the normal range. This was the only test in which Benda felt the need to consider the childrens' reactions to the experiment. He wrote:

The usual preparations for the test were made, breakfast was withheld and great care taken to have the patients comfortable and relaxed.<sup>40</sup>

This concern appears to have been motivated by fears that subject anxiety would affect the test results.

The cholesterol levels and the basal metabolic rates were all within the normal range and suggested that 'mongolism' was not a hyperthyroid or hypothyroid condition. The dextrose tolerance tests, however, revealed a delayed glycemic response and Benda interpreted this as indicative of pituitary

hypofunction.

A couple of years later Benda attempted to establish the mechanism responsible for his dextrose-tolerance test results.<sup>41</sup> H. E. Himmwich had suggested that the Exton-Rose test could help determine this and Benda consequently performed the test on ten people with Down's syndrome aged between five and thirty three years. In addition, he also performed certain insulin tolerance tests which involved administration of adrenalin intramuscularly after two hours.

The tests were plainly unpleasant; after the administration of the insulin the patients experienced sweating, increased temperature and tremor, and following the adrenalin the reactions were extreme pallor, gagging, discomfort, fear, and accelerated pulse. In addition, they were sometimes performed when the patients were very distressed at their prospect and objected to taking part. Benda, for example, reports the case of a girl "who was seriously frightened at the prospect of needle injections" and he states that she displayed both "fear and anger at the time when the insulin was injected".<sup>42</sup>

The Exton-Rose tests indicated some abnormality of glucose metabolism. The insulin tolerance curves all fell within the normal range, but the blood sugar levels of the people with Down's syndrome were lower than controls at the end of two hours, and rose less than the



controls on administration of adrenalin. Benda speculated that this might be a consequence of insufficient stores of glycogen in the liver which might be a result of an inability to store glycogen and therefore release glucose. The glucose tolerance curves were themselves variable and unpredictable and Benda compared them to those found in acromegaly. He reasoned that if mongolism were a consequence of pituitary dysfunction they would have variable glucose tolerances as in acromegaly, but a clinically and pathologically opposite picture due to a normal or decreased, instead of an increased growth hormone. Indeed Benda's belief in the importance of the relationship between acromegaly and Down's syndrome led him to consider that the term 'congenital acromicra' was a more appropriate term for Down's syndrome than mongolism. (In 1902 Carl Benda had demonstrated that hyperplasia of the eosinophil cells in the anterior lobe of the pituitary occurs in acromegaly).<sup>43</sup>

The question of consent from the parents of the children at the Wrentham State School was not considered: the power of the medical superintendent to allow experimental work to be conducted on his patients / pupils had not changed since the early twentieth century. Indeed the concept of the institution for the mentally handicapped as a laboratory also continued to flourish. This does not mean, however, that this was always bad for people with handicaps. During the 1930's

and 1940's Harold M. Skeels, Harold B. Dye, Beth Wellman, Marie Skodak and others conducted research at the institution for Feeble-minded Children at Glenwood Iowa, which challenged prevailing attitudes concerning the constancy of the I.Q. While the Iowa studies were being reported, another research group had been assembled at the Wayne County Training Centre in Northville Michigan. During his tenure, Robert H. Haskell, superintendent at the training school greatly developed research and attracted such men as Samuel Kirk, Newell Kephart, Boyd McCandless, Alfred Strauss, Thorlief Hegge, Heinz Wemer, M. H. Ainsworth, Z. P. Hoakley, and Sydney Bijou. At the training school, Kirk developed a "Self Determining Cottage", Kirk and Hagge experimented with the value of preschool educational programmes for the retarded and Hoakley published reports on the variability of the I.Q. While at the Training School, Strauss, a child psychiatrist trained in the Gestalt approach, and Wemer, an experimental psychologist developed the concept of the brain injured child.<sup>44</sup>

Benda's tests could also be considered to hold potential benefit for the subjects which could outweigh the distress which their administration might cause. He believed that his investigations had demonstrated that the pituitary was an important factor in mongolism and that it was justifiable to subsequently administer oral

doses of pituitary hormone. The effects of this preparation was that patients with Down's syndrome increased in size (because of receiving large amounts of growth hormone) and Benda claimed that there was a definite increase in their mental powers.

In England, during the forties and fifties, there were very few biochemical tests carried out on people with Down's syndrome so that the hypothesis that hormonal abnormality was the explanation for the occurrence of the syndrome remained untested. When Penrose fulfilled his function by completing the Colchester survey he was not replaced and the concept of the institution as a 'laboratory' simply did not exist in England. Consequently, it was the therapy which people with Down's syndrome received to improve their physical and mental capacity which was experimental, being not tailored to findings about their physiological states in the way in which, for example, Benda's administration of pituitary hormone had been designed to be.

Lionel Penrose, himself, had, in fact, temporarily discontinued his study of Down's syndrome during the early nineteen forties. When the Colchester Survey had been concluded in 1938, he accepted the post of Director of Psychiatric Research in Ontario, and went to Canada in 1939, thus returning to the general psychiatry in which he had begun his career. At the end of the Second World War, in 1945, this period of mainly clinical

research came to an end with his appointment to the University of London Galton Chair of Eugenics which entailed being the Director of the Galton Laboratory at University College. He was the first medically qualified incumbent of this chair, and under his direction the work of the Laboratory, while continuing in the mathematical tradition, became more concerned with the application of genetics to medicine. In relation to this, and in order to recommence his study of Down's syndrome, he established a close relationship with a hospital for people with mental handicap, Harperbury Hospital, and regularly examined and investigated the patients there. He also served for a number of years on the Harperbury Management Committee, although he has<sup>45</sup> been reported to have not liked committee work.

Penrose's involvement with the hospital enabled him to gain access to subjects for research. One of the investigations which he authorised using individuals with Down's syndrome was a specific attempt to test Bleyer's hypothesis. The actual counting of the number of chromosomes found in Down's syndrome was made by<sup>46</sup> Ursula Mittwoch.

Penrose's interest in the chromosome number in Down's syndrome appears to have been stimulated by new findings about the inheritance of the syndrome - for the first time, authenticated examples of offspring from mothers with Down's syndrome had become available. In

1949, four French researchers, Lelong, Borniche, Kreisler and Baudy recorded a well-documented case of a mother with Down's syndrome who had given birth, at the age of 30, to a male child with Down's syndrome.<sup>47</sup> In the same year, an American researcher, G. M. Sawyer, described a female child aged 13, perfectly normal mentally and physically, but whose mother had Down's syndrome and was in an institution.<sup>48</sup>

These results were plainly compatible with the occurrence of Down's syndrome as the result of non-disjunction, but also not incompatible with Penrose's views of the syndrome which he had expressed in 1949 in his book The Biology of Mental Defect.<sup>49</sup>

His views in 1949 did not differ very much from those he held in the 1930s; he stated his belief that Down's syndrome could be caused by a dominant gene whose manifestation was determined by intrauterine environment (if Down's syndrome were caused by a dominant gene then any offspring would have a 1 in 2 chance of being affected), or alternatively by an unbalanced chromosome configuration. However, at this time, he also toyed with the possibility that the causation of the condition might be entirely environmental so that "the occurrence of more than one case in a sibship might not be genetical but due to the constant peculiarity of the maternal environment". It should be noted that Penrose had now had an opportunity to examine the English edition (1947) of Benda's book on

Mongolism and Cretinism, which had examined the significance of the familial studies. Benda had found that in two hundred and fifty five families, two hundred and fifty three of them (with one to fifteen children in them) had only one child with Down's syndrome in the family. This, Benda considered, made it highly unlikely that Down's syndrome had any genetic component. In the very small number of families where there was more than one child with Down's syndrome, he considered that they were the result of 'bad heredity'; the mongoloid characteristics being "superimposed and due to certain factors within the mother which are similar to those seen in mothers who had one mongoloid child only". This reasoning was compatible with his firm belief that the mother and not the father was always responsible for the production of a child with Down's syndrome.<sup>50</sup>

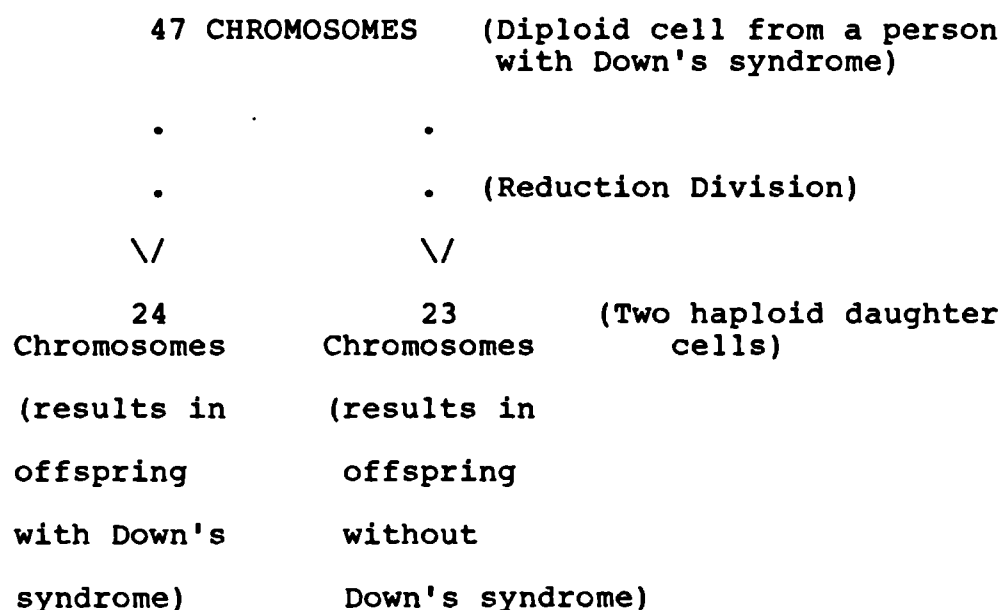
Mittwoch counted twenty four chromosomes, the number that would be expected to be found in a sex cell (after the reduction division) if Down's syndrome were<sup>51</sup> the result of non-disjunction.

However, it was not then concluded that Bleyer's theory was correct. This was because the belief existed at the time that 'normal' cells at the stage of spermatogenesis which Mittwoch was observing, would also have been expected to contain twenty four chromosomes (forty eight chromosomes in somatic cells). This had

been generally accepted to be the 'normal' number of chromosomes since Painter counted this number in 1923 (from cells in the testes of the men who had been castrated at the Texas Insane Asylum). Everyone else who subsequently attempted to determine the number had managed to find forty eight too.

Penrose must have been pleased that Mittwoch was able to find the expected number for a cell which had not been formed by non-disjunction. Bearing in mind that about half the cells Mittwoch counted probably should have been found to have twenty three chromosomes in their nuclei, not twenty four, one might speculate that had the expected number for a 'normal' cell been twenty three, she, not being a cytologist, might have found this number in the cells from the person with Down's syndrome.

Number of Chromosomes in Haploid Daughter Cells from a Person with Down's syndrome following the Reduction Division: Fig. 2.



If the person with Down's syndrome had some cell lines with forty six chromosomes (mosaicism), Mittwoch would have been expected to have found more than half of the cells with twenty three chromosomes.

In 1954, in the second edition of the Biology of Mental Defect Penrose concluded from the two examples of offspring from affected mothers that as one of them was affected this was a very unlikely event to have occurred on a random hypothesis and therefore it was probable that the syndrome did have a genetic basis which was very common in the population. He speculated that a kind of all-or-none reaction retarding development might occur when the summation of genic and environmental effects in mother and foetus reached a limiting concentration.  
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Benda's response and interpretation of the type of offspring born to people with Down's syndrome differed from that of Penrose; in a paper Benda wrote on the subject,  
53 he placed his greatest emphasis on the importance of the fact that it had now been proved that 'mongoloid girls' could definitely become pregnant and carry a child to term. This he suggested should be taken note of in those states where sterilization laws were in effect. Penrose's lack of attention to this point can be explained by the fact that in England no such laws had still been passed. In terms of the genetics of Down's syndrome, Benda was also able to show that the offspring



types were not incompatible with his own theory that the mothers of children with Down's syndrome had thyroid trouble. He suggested that the fact that a normal child had been born to a woman with Down's syndrome was evidence in favour of the belief that mongolism was a non-genetic, non-hereditary condition, due to external factors such as abnormal function of the maternal endocrine system.

The following year, in 1955, Joe-Hin Tjio and Albert Levan working collaboratively in Sweden determined the diploid number of human chromosomes which is believed to be correct today - forty six.<sup>54</sup> Kevles has pointed out that their work differed from previous analysts in a number of respects: their reliance on tissue culture (the technique by which cells are kept alive and multiplying in vitro with suitable nutrients); hypotonic treatment of the cells so that the chromosomes separated from one another and were consequently much easier to count (a method first accidentally discovered by Hsu in 1952); the pre-treatment of cells with colchicine which arrests cell-division in its course providing more cells to be observed in the process of splitting and also reduces chromosomal size preventing overlap; and the squash technique so that the cells were 'squashed' rather than sectioned, and therefore the<sup>55</sup> chromosomes spread onto a single optical focus plane. They published their results in 1956 and they very quickly became known in England.

Penrose, however, rather strangely, did not then suggest that Bleyer's early hypothesis might well have been correct (because, of course, Mittwoch had counted twenty four chromosomes in a haploid cell from a person with Down's syndrome). He was clearly trying to stick to his guns over his earlier belief in the existence of an intra-uterine environmental causative factor in the condition. The possibility must, however, have also been in his mind that raised parental age might be linked with non-disjunction, and that his own definite conclusion that only raised maternal age was a risk factor would probably also be found to be incorrect.

His reluctance to change his early perception and statements about Down's syndrome is also apparent in his later characterizations of the personality and intelligence of the person with Down's syndrome. This is most strikingly seen in his reactions to the publication of a book in 1966 by a young man with Down's syndrome,<sup>56</sup> Nigel Hunt. Penrose wrote the forward to this book and, in this, goes to some lengths to demonstrate that the text of the work proved rather than disproved the stereotype of the 'Mongol'. He wrote:

The text of the essay deserves careful study. Preoccupation with musical performance is evident; friendliness and a sense of humour are among the classical features of temperament in the anomaly first described by Langdon Down just one hundred years ago and misnamed mongolism. Other psychological characteristics are demonstrated here especially because of Nigel's astonishing knowledge of words. His powers of observation are acute and his memory of separate events is extremely good. His manner of thinking, however, is

entirely concrete. He is interested in fact, not fancy. He never makes a generalization. Each event is separately apprehended, and usually the temporal sequence is correctly recorded; but experiences of the same kind are not compared with one another. He is content, for example, to refer to his father and his English teacher at school without explaining that they are one and the same person - though this may be a kind of joke. With respect to the concept of numbers he seems definite about one, two, three, and four, but sometimes counts the same person twice. He speaks of thousands and millions to indicate magnitude. Indeed, his understanding of the ordinal significance of numbers is accurate. He does not, however, indicate that he can appreciate the abstract idea of cardinal numbers as used in addition and subtraction. On the other hand, he can recognize the equivalence of words with the same meaning in different languages. His powers of description, too, are vivid at times; there is energy and movement in them and often an unexpected phrase which shows a charming blend of childishness and sophistication. An interesting feature of his construction is a tendency to return frequently to the same theme eg. lemonade, in a different context - a device much used in musical composition. Punctuation and spelling are surprisingly good throughout the typescript, and very few corrections were necessary.

The basis for Penrose's assertion that Hunt was preoccupied with musical performance was Hunt's interest  
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in pop-music; a hobby shared by the majority of teenagers. The form of friendliness and sense of humour shown by Hunt in his writing style were far removed from that which Down referred to as characterizing the 'Mongol' in the nineteenth century.

Penrose's statement that Nigel Hunt's manner of thinking was 'entirely concrete' was another way of saying that it was of the lowest level, probably equivalent to a child some years younger than Hunt. This remark appears to have been largely a result of his observation that Hunt did not make generalizations; a peculiar comment about a piece of creative (not

scientific!) writing which contained such an advanced analogical phrase as 'miserable trombones', and a description of a coach climbing a mountain as 'roaring with pain'.<sup>58</sup>

Penrose's reexamination of the question of the chromosome number in Down's syndrome did not come until 1959 and then it was only an indirect consideration; following the discovery that people with Klinefelter's syndrome had three sex chromosomes, he wanted to test a patient who had been diagnosed as a 'Klinefelter Mongol'.

Before Penrose was able to do this Jérôme Lejeune, a geneticist in France announced that he had found in a number of people with Down's syndrome the forty seven chromosomes which would be expected if the condition were the result of non-disjunction.<sup>59</sup> Lejeune, however, was not testing Bleyer's hypothesis when he examined the karyotypes, but had arrived at the conclusion that people with Down's syndrome differed from their parents in the number of chromosomes which they possess by similar reasoning to his. Like Bleyer, he did not incorporate a role for raised maternal age and not raised paternal age in his theory of causation, and he, too, also made analogies between Down's syndrome and the unusual 'types' from other species - while Bleyer had compared the person with Down's syndrome to a variety of Evening Primrose, Lejeune compared him to a particular

fruit fly, Haplo-four, which differs from the 'normal' type in many characteristics.

One question which arises here is how ethical was it to remove the cells from the patients with Down's syndrome to test his hypothesis. Although the cells were not obtained as a result of castration, but were taken from the fascia lata which covers muscle, the process must have caused some discomfort. No treatment was known which could have helped the subjects with Down's syndrome if non-disjunction were found to be the cause, but obviously the establishment of the mechanism by which Down's syndrome came about would have had the effect of both preventing unnecessary experiments and incorrect therapies on these particular people in the future; and also of possibly leading to the development of some form of treatment, as biochemistry and genetics developed, which could counter the effects of the extra genetic material.

Bleyer, in his 1934 paper, had quoted a passage from Eugene Walter's book which had stated that translocations produced similar 'types' of abnormalities to those found as a result of non-disjunction, and in 1960 it was again proven that Bleyer, all those years earlier, had proposed correctly the other mechanism by which Down's syndrome could be produced. It was translocations, too, which explained Penrose's observations that sometimes more than one person with Down's syndrome could be found in a family.

What then became of Penrose's categorical assurance that raised paternal age definitely was not a risk factor for Down's syndrome because an abnormality of the maternal intra-uterine environment explained the association of the condition with parental age?

A couple of years later Penrose reexamined the question of whether raised paternal age could ever be a risk factor for Down's syndrome.<sup>60</sup> He was not, however, prepared to admit that he may have been wrong in 1933, and only considered the question of parental age for eight people with Down's syndrome (translocation carriers) where the presence of a chromosomal fusion of the type 21:21 or 22 had been established.

The form of statistical analysis which he used was the same one as he had employed in 1933. Using this analysis he concluded that "mongols with somatic chromosomal fusion of the 21:22 type form a special group in which the advancing paternal age, and not maternal age is a highly significant aetiological factor."

The mean age of the father of the child with this type of translocation was forty two and a half years, while the mean age of the mother was thirty three and four tenths of a year. Penrose must have been aware that such considerably elevated paternal age could also have resulted in paternal non-disjunction, and it is quite surprising that he did not examine the question of

whether such an association did exist.

Benda was also reluctant to change significantly his conception of Down's syndrome following the discovery that an additional chromosome was generally present in people with the syndrome. In his 1960 book The Child with Mongolism (Congenital Acromicria) he discussed his evaluation of the significance of the finding. He was, in fact, even more reluctant than Penrose to abandon his old theories and regarded the interpretation of the new observations as a matter of controversy, rather than definitive proof that the characteristics of the condition were the result of non-disjunction in the germ cells of the mother or father. Indeed, there is no mention whatsoever of the possibility that non-disjunction could occur in the father and this was in spite of the fact that he had evidence that certain fathers of children with Down's syndrome had been exposed to damage to their "progenitive systems" (testicular tumours, radiation damage or others). He wrote of these findings:

Some of these cannot withstand critical analysis, and others do not exclude mere coincidence. On the other hand, certain characteristics in the mother repeat themselves with such frequency that they must be considered of definite significance.<sup>62</sup>

One of these special characteristics in mothers with a child with Down's syndrome was a "high strung, nervous, easily upset personality" which, of course, had originally been part of the nineteenth century degeneration paradigm. More recent evidence of the

apparent validity of this relationship came from the 1953 study by Benda (and Bowman) in which they had examined the psychological factors in 24 mothers after they had given birth to a child with Down's syndrome. Six of the mothers were found to be severely disturbed, with depressions and anxieties. Eighteen were at least very easily irritated and inclined to depressive mood swings. Marital conflicts, frustration, alcoholism of the husband, rebellion against the marriage were observed in 15 instances. Benda did not consider the obvious possibility that these "psychological factors" could have been produced by the high level of stress associated with the birth of a child with abnormalities.

Benda also speculated that the accessory chromosome might not be genetically active. In addition, he considered that it was plausible that the additional chromosome was not present in the ovum, but was the result of molecular pathology which occurred because of noxious factors acting during the early stages of pregnancy. There was also the chance, he suggested, that the apparent additional chromosome was just a fragment of another incomplete chromosome in the karyotype, so that there was no extra genetic material in Down's syndrome.<sup>63</sup>

In the first edition of Tredgold's Textbook of Mental Deficiency which appeared (in 1963) following the discovery of the additional chromosome, 'mongolism' was



assigned to a separate chapter, being no longer perceived as belonging to either the primary or secondary amentia categories. It should be noted, however, that the concept of Down's syndrome which R.F. Tredgold now accepted, was little different from that which had been believed to be correct in the 1947 edition of the text-book when 'mongolism' had been included in the primary amentia category. The only difference now was that R. F. Tredgold did not accept that 'psychopathic' inheritance played any part in causation. The cause of the non-disjunction was recognised to be still unknown, but it was considered that "the mother's age, health and in particular her endocrine balance may well be relevant." This form of reasoning ie. the use of theories which were part of earlier conceptions of the syndrome characterised the entire chapter. Thus tuberculosis, syphilis and alcoholism were also considered to possibly have some influence in causing the occurrence of the chromosome alteration, and the abnormalities associated with the syndrome were still viewed as due to a lack of development (a concept which dated from the nineteenth century), rather than the extra genetic material.

The consequences of the establishment that Down's syndrome is the result of an extra chromosome for the treatment of people with the syndrome between 1959 and 1967

The specific treatment of people with Down's syndrome following the discovery of the additional chromosome took two forms - experimentation and abortion. Calls were also made by authorities on the syndrome not to now abandon research on the therapeutic treatment of affected people. Benda stated in 1960 that if the additional chromosome were found to be significant then "it would not paralyze therapeutic endeavours, but on the contrary facilitate more rational therapy to correct abnormal cell metabolism."<sup>65</sup> No such therapy was to materialise.

The experimentation which was conducted on people with the syndrome was a consequence of the fact that Lionel Penrose, in 1961, reached the conclusion that they might have a greater value than that of simply being a useful tool for drawing biological generalizations from; their blood might have special properties because of the presence of the additional chromosome: properties which could cure leukaemia.<sup>66</sup>

By this time it was known that certain types of chronic leukaemia are associated with evidence of an abnormality of the chromosome which is triplicated in Down's syndrome; in addition, leukaemia in Down's syndrome had been studied and the association of the two conditions demonstrated statistically; it was also

believed that certain types of chronic leukaemia were  
associated causally with a virus.<sup>67</sup>

Penrose reasoned that as people with Down's syndrome are significantly liable to leukaemia in infancy and childhood, but not in adult life, and that only five per cent of them suffer from the cancer, but considerably more must be predisposed to it, then those who have not got it must have some particular resistance to it. He did not however consider the possibility that people with Down's syndrome might also have some innate special immunity as a consequence of the possession of the additional chromosome. No doubt, part of the reason for this was the well established assumption, stemming from a particular interpretation of the degeneration paradigm, that people with Down's syndrome were inferior or less fit than 'normal' people in every possible way:  
mentally, physically and morally.<sup>68</sup>

Penrose postulated that there must be something present in the blood serum which had the capacity to render the products of the virus harmless, or to keep the virus in check.

He also argued that "in view of the failure to find any treatment for leukaemia it is not perhaps unreasonable to suggest using the natural immunity of healthy mongols in a new therapeutic attempt."<sup>69</sup>

He did not find it difficult to interest Dr. Tom Pranker of the University College Medical School, who regarded Penrose's theory as "a very ingenious idea and

well worth trying"<sup>70</sup> and had no hesitation in promising that "we will certainly lay on some patients for<sup>71</sup> trial."

Penrose also informed Professor Witts<sup>72</sup> of the Nuffield Department of Clinical Medicine at Oxford, who also offered to provide patients for treatment commenting that "the problems of leukaemia are so intractable that I am sure any reasonable lead should be<sup>73</sup> followed."

The donors with Down's syndrome were drawn from Harperbury Hospital and Cell Barnes Hospital following consent from their relatives who had been contacted by the superintendent, Dr. Shapiro.<sup>74</sup> The question of consent from the patients themselves was not considered, but "co-operative people"<sup>75</sup> only were brought to U.C.H.

Two patients only with chronic myeloid leukaemias were treated with the blood from the people with Down's syndrome and after just three months the treatment was abandoned because the patients were said to be<sup>76</sup> deteriorating.

With such a small number of people receiving this treatment it cannot be concluded that it would definitely have been valueless for all people with leukaemia. Indeed in view of the fact that it is now known that the gene for the putative interferon receptor is located on chromosome 21 a possible explanation for the existence of a natural immunity to leukaemia in

certain people with Down's syndrome exists (it may be that those not exhibiting the immunity had translocation or mosaic varieties of the syndrome). It should be noted, too, that interferon is known today to be an effective cure of a particular type of leukaemia.

Abortion of foetuses with Down's syndrome was made possible because it became possible to test, by the already known process of amniocentesis, older pregnant mothers (young pregnant mothers with middle-aged or elderly husbands have generally not been tested) to determine whether or not they were carrying a foetus with an additional chromosome, and thereby offer the mother the option of abortion.

Knowledge of the possibility of puncturing the uterus of a pregnant woman from the vagina or through the abdominal wall and withdrawing amniotic fluid with limited risks to the mother had been obtained in 1950.<sup>77</sup>

The examination of foetal cells from this fluid had originally been undertaken to enable foetal sex to be determined - a vital piece of information when sex-linked recessive, hereditary conditions such as haemophilia and pseudoglioma were being carried by mothers.

The methods for the determination of foetal sex had been simultaneously devised in Copenhagen, New York, Jerusalem and Minneapolis in 1955, and were a direct result of two scientific developments: the discovery of sex chromatin in intermitotic nuclei from female cells

and the finding that sex chromatin could be demonstrated not only in living tissue, but also in desquamated cells from mucous membranes so that cells in amniotic fluid might show the sex of the foetus.<sup>78</sup>

The Lancet in 1960 had carried a report of the ante-natal testing of foetuses in Denmark where legal abortion had been granted since 1956 if there were "close risk that the child due to inherited characteristics or to disturbance or disease acquired during foetal life, may come to suffer from mental disease or deficiency, epilepsy, or severe and non-curable abnormality or physical disease". The risks associated with amniocentesis were discussed and although the case-histories cited had suggested that the procedure was very harmful to the female foetus which would not be aborted (one was delivered prematurely at seven months weighing two and a half pounds and the other was born dead), it was considered that the risk to unaffected foetuses or simple carriers of haemophilia should not prevent the continued evaluation of the procedure because of its potential use in preventive eugenics.<sup>79</sup>

Shortly afterwards, two American physicians, Mark Steele and Roy Breg successfully cultured amniotic fluid cells in sufficient quantities for them to be karyotyped so that the chromosome analysis of the foetus in utero was made feasible.<sup>80</sup>

It was not long after this that it became legal in Britain to abort a foetus simply because it was found to have Down's syndrome; in 1967 an act was passed which enabled medical termination of pregnancy "if two registered medical practitioners are of the opinion formed in good faith...b) That there is a substantial risk that if the child were born it would suffer from such physical or mental abnormalities as to be seriously handicapped."<sup>81</sup>

This was one of several additions to the previous abortion act which had only theoretically permitted termination of pregnancy if it were necessary to safeguard the physical or mental health of the mother. The former act had, however, already been used to allow the abortion of foetuses where, for example, the mother had had rubella in the first twelve weeks of pregnancy or the mother had taken the thalidomide drug, by the use of the argument that the prospect of an abnormal child was causing great anxiety to the mother. This need to prove that the birth of an abnormal child would affect the psychiatric health of a particular mother would have made it impossible to introduce the routine screening of older mothers for evidence that their foetus had Down's syndrome. The 1967 Act, on the other hand, allowed that the mother could now make the decision to prevent the birth of a handicapped child, not simply because of her or her physician's concern for her well-being, but because she believed that she was acting in the best

interests of the handicapped child himself, who might be considered to be better dead, than alive with handicaps and a possibly very limited life-span, or in the best interests of other members of her family, who might be considered to suffer from the presence of an abnormal child with special needs. Indeed, the 1967 Act generally recognized that abortion could be undertaken for all women (not just those carrying an abnormal child) if continuance of the pregnancy would injure the physical and mental health of any existing children in the family - the law thus recognized that some families were not sufficiently secure to withstand the addition of  
82  
another child, particularly one with handicaps.

Predictably, not everyone supported the 1967 Act and in January 1967 the Society for the Protection of the Unborn Child was formed; members of the society unsuccessfully opposed the Bill which they believed  
83  
would have disastrous consequences.

In America, at the time the 1967 Act was passed, it was reported that abortion laws were being virtually ignored by most American physicians who had substituted a code of their own. In practice this meant that certain physicians accepted the possible birth of a deformed foetus as grounds for abortion while others did not  
84  
unless the mother's health was threatened.

Ironically, the legalisation of the abortion of any foetus with Down's syndrome occurred just at the



time when the individual rights of people with mental handicap were receiving considerable attention.

A consideration of their civil liberties had actually really started in the 1950s in Britain with the recognition that the coercive nature of the 1913 Mental Deficiency Act was not compatible with the new structure of the welfare services which had been established following the Labour Government's (1945-51) setting up of the National Health Service and their introduction of National Insurance and National Assistance. A spate of legal actions seeking the release of people from the mental deficiency institutions had ensued. A Royal Commission had been established and in 1959, the Mental Health Act was passed which abolished the heavy reliance on compulsory procedure that occurred prior to institutionalization.<sup>85</sup>

Further attention to the rights of people with mental handicaps followed the extensive critiques of psychology, psychiatry and institutions which had begun in the sixties. These criticisms have been considered to have been spurred by the civil rights, anti-war and women's movements.

Goffman's 1961 essay, Asylums, for example, exposed the potentially debilitating effects of what he termed the total institution. This, he defined "as a place of residence and work where a large number of like-situated individuals, cut off from the wider society for an appreciable period of time, together lead

an enclosed, formally administered round of life."<sup>86</sup>

However, public attention was drawn to the specific treatment of those with mental handicaps in institutions only in 1967 when a newspaper article appeared on the subject. Ryan considers that the major significance of this article was the silence about actual hospitals which had previously existed, and the extreme difficulty which hospital staff had in exposing<sup>87</sup> the true conditions.

In 1967, too, Pappworth published his book on human experimentation which highlighted the problems of investigations on people with mental handicap because they are generally incapable of giving consent. He singled out one of Benda's investigations for particular criticism because it involved the use of controls, who could not benefit from the experiment, and of radioactive substances, which could harm the<sup>88</sup> subjects. However, a detailed examination of Benda's contemporary work shows that he was generally concerned about the treatment of individuals with the syndrome calling for proper attention to their needs which, he believed, could produce amazing educational<sup>89</sup> development.

While the the introduction of the abortion of fetuses with Down's syndrome was not associated with a contemporary devaluation of those who had already been born with the syndrome, it cannot be concluded that both

the discovery of the additional chromosome and the automatic right to abort an affected foetus did not have some repercussions for those with the syndrome. But that  
90  
is another story.

### Conclusion

Bleyer arrived at his theory that Down's syndrome occurred as a result of non-disjunction in large part because he did not place the importance on raised maternal age as an aetiological factor that other contemporary investigators did.

His theory was not tested, however, for many years because of the problems associated with counting human chromosomes. Much speculation about the aetiology of the condition therefore continued.

The major consequence of the discovery in 1959 that Down's syndrome was the result of an additional chromosome, was the possibility of aborting fetuses with the syndrome. This was legally permitted in Britain in 1967.

#### CHAPTER TEN: NOTES

1. For a discussion of Bleyer's life see L. E. Karp "Adrien Bleyer: In the Right Place at the Wrong Time" American Journal of Medical Genetics 10 (1981): 209-211.
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3. P. J. Waardenburg Das Menschliche Auge und seine Erbanlagen (Haag: Martinus Nijhoff, 1932). Referred to by A. Gordon in "Aetiology of Down's syndrome inferred by Waardenburg in 1932", Nature 250 (1974) 436-7.
4. H. Armstrong "The Etiology of Mongolism", British Medical Journal i (1928): 1106.
5. L. S. Penrose "The Relative Effects of Paternal and Maternal Age in mongolism", J. Genetics 27 (1933): 219.  
L. S. Penrose "On the interaction of heredity and environment in the study of human genetics", J. Genetics 25 (1932): 407.
6. R. L. Jenkins "Etiology of Mongolism", Amer. J. Dis Child. 45 (1933): 506.
7. A. J. Rosanoff and L. M. Handy "Etiology of mongolism with special reference to its occurrence in twins", Amer. J. Dis. Child. 48 (1934): 764.
8. A. Bleyer "Role of advanced maternal age in causing mongolism", Amer. J. Dis. Child. 55 (1938): 79.
9. J. Fraser and A. Mitchell "Kalmuc Idiocy: Report of a case with autopsy with notes on 62 cases by A. Mitchell", J. Ment. Sci. 22 (1876): 169-180.
10. W. Bertram-Hill "Mongolism and its Pathology: An Analysis of eight cases", Quart. J. of Med. ii (1908): 49-69.
11. G. E. Shuttleworth "Mongolian Imbecility", British Medical Journal ii (1909): 661.
12. Brousseau rejected raised maternal age as an explanation for the syndrome because she was aware that many 'Mongols' were born to mothers under 35 years of age. She rejected birth order because of her statistical evidence that out of 800 cases, 57.49% were the first, second or third child. She rejected any possibility of some factor acting during the pregnancy of the mother

because of the occurrence of the condition in one of twins. Kate Brousseau Mongolism (London: Baillière, Tindall & Cox, 1928) pp.43-44.

13. Ibid. p.43.

14. F. G. Crookshank The Mongol in our Midst (London: Kegan Paul, 1931) p.380.

15. A. Bleyer "The Occurrence of Mongolism in Ethiopians", Journal of the American Medical Association 84 (1925): 1041-1042.

16. J. L. H. Down "Observations on an Ethnic Classification of Idiots", Clin. Lectures and Reports, London Hospital 3 (1866): 259.

17. F. G. Crookshank op. cit. note 12 p.89.

18. Ibid. p.89.

19. A. Bleyer "Frequency of mongoloid imbecility; question of race and apparent influence of sex", Amer. J. of Dis. Child. 44 (1932): 503-508.

20. A. Bleyer op. cit. note 2.

21. L. E. Karp op. cit. note 1 p.209.

22. T. H. Morgan and C. B. Bridges "Dilution effects and bicolorism in certain eye-colors of *Drosophila*", Jour. Exp. Zool. 15 (1913): 429-466.

23. E. A. Carlson "Bridges-Calvin Blackman (1889-1938) *Drosophila* group. The transition from the Mendel Unit to the Individual Gene", J. Hist. Biol. 7 (1974): 31-48.

24. L. S. Penrose "Some Genetical Problems in Mental Deficiency", J. Ment. Sci. 84 (1938): 693.

25. T. Painter "Studies in Mammalian Spermatogenesis II The Spermatogenesis of Man", The Journal of Experimental Zoology 37 (1923): 293.

26. A complete bibliography can be found in Greenstein Vol. 1 1956, Vol. 6 1964, Vol. 10 1971. Noted in International Biographical Dictionary of Central European Emigrés (1933-1945) Vol. II.

27. Ibid.

28. Benda was specifically influenced by R. Virchow's paper "Knochenwachsthum und Schädelform, mit besonderer Rücksicht auf Cretinismus" Virchows, Arch. f. path. Anat. 13 (1858): 328.

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30. Ibid. p.97.
31. A. Keith "Studies on the Anatomical Changes which accompany certain growth-disorders of the human body" Journal of Anatomy 54 (1919): 101.
32. C. E. Benda "Studies in Mongolism: II The Thyroid Gland" Arch. Neurol. & Psychiat. 41 (1939): 243.
33. C. E. Benda and E. M. Bixby "Function of the Thyroid and the Pituitary in Mongolism" American Journal of Diseases of Childhood 58 (1939): 1242.
34. C. E. Benda "Studies in Mongolism: III The Pituitary Body" Arch. Neurol. & Psychiat. 42 (1939): 1.
35. Ibid. p.11.
36. Ibid. p.18.
37. Ibid. p.19.
38. C. E. Benda Mongolism and Cretinism. A Study of the Clinical Manifestations and the General Pathology of Pituitary and Thyroid Deficiency (London: Heinemann, 1947) pp.249-251.
39. A. F. Tredgold A Text-book of Mental Deficiency 7th edition (London: Baillière, Tindall & Cox, 1947) p.200.
40. Ibid. p.1249.
41. E. M. Bixby and C. E. Benda "Glucose Tolerance and Insulin Tolerance in Mongolism" American Journal of Mental Deficiency 47 (1942): 158.
42. Ibid. pp.164-165. Benda, it must be remembered, had been living in Nazi Germany when sterilisation of the feeble-minded had been made compulsory. This probably did have some effect on his perception of the rights of people with handicaps.
43. Carl Benda "Akromegalie" Deutsche Klin. 3 (1902): 261. Discussed by Clemens Benda op. cit. note 34 pp. 14-15.
44. Noted by M. Rosen et al. in "Introduction. Section Six" The History of Mental Retardation. Collected papers Vol. 2 eds M. Rosen, G. Clark, M. Krivitz, (Baltimore: University Park Press, 1976).

45. Details of Penrose's life noted by A. Shapiro in "A Biographical Note" British Journal of Psychiatry 125 (1974): 517-20.
46. U. Mittwoch "The Chromosome Complement in a Mongolian Imbecile", Annals of Eugenics 17 (1952-3): 37.
47. Lelong, Borniche, Kreisler and Baude "Mongolien Issu de Mère mongolienne" Arch. fran. Péd. 6 (1949): 231. (Ref. from L. Penrose The Biology of Mental Defect)
48. G. M. Sawyer "Case Report: reproduction in a mongoloid" Amer. J. Ment. Def. 54 (1949): 204. (Ref. from L. Penrose in The Biology of Mental Defect).
49. L. Penrose Biology of Mental Defect 1st. Edition., (London: Sidgwick & Jackson Ltd., 1949) pp.185-190.
50. C. Benda op. cit. note 38 pp.251-253.
51. U. Mittwoch op. cit. note 46.
52. L. Penrose The Biology of Mental Defect (London: Sidgwick & Jackson Ltd., 1954) p.281.
53. C. Benda "Discussion of the Paper of Grace M. Sawyer M.D. and Albert J. Shalter Ph.D. on the Reproduction in a Mongoloid. A follow up" American Journal of Mental Deficiency 61 (1949): 796. Benda's argument in support of Down's syndrome being a non-genetic condition was one of the factors responsible for R. F. Tredgold's (in the ninth edition - 1956 - of A Text-book of Mental Deficiency) inclusion of Down's syndrome in the secondary amentia group. See R. F. Tredgold and K. Soddy A Text-book of Mental Deficiency (London: Baillière, Tindall & Cox, 1956) pp. 298-299.
54. J. H. Tijo and A. Levan "The Chromosome Number in Man" Hereditas 42 (1956): 1-6.
55. D. Kevles In the Name of Eugenics (London: Pelican Books, 1986) p.238.
56. Nigel Hunt The World of Nigel Hunt (Ballater: Asset Recycling Ltd., 1966).
57. Ibid. p.59.
58. Ibid. p.40. p.55
59. J. Lejeune, M. Gautier, & R. Turpin "Etudes des chromosomes somatiques de neuf enfants mongoliens" C.R. Acad. Sci. 248 (1959): 1721.
60. L. S. Penrose "Paternal Age in Mongolism" Lancet i (1962): 1101.

61. Studies suggest that 20% to 25% of the errors accounting for trisomic offspring are of paternal origin. The discovery of which parent has contributed two chromosomes 21 has been possible since the development of banding techniques in 1969. Chromosome 21 has a variable short arm which can be used to represent a stable, heritable marker. Blood samples are taken from patients with Down's syndrome and their parents; staining with, for example, quinacrine mustard is undertaken; metaphase spreads are photographed; and comparison of the markers of the subject with Down's syndrome and the parents are then made by a number of skilled observers. For an account of the development of quinacrine chromosome banding techniques see T. Caspersen, , M. Hulten, J. Lindsten, and L. Zech "Distinction between extra G-like chromosomes by quinacrine mustard fluorescence analysis", Exp. Cell. Res. 63 (1970): 240-243. T. Caspersen, G. Lomakka, and L. Zech "The 24 fluorescence patterns of the human metaphase chromosomes - Distinguishing characters and variability." Hereditas 67 (1971): 89-102.

For evidence of paternal non-disjunction see R. Magenis, and J. Chamberlin, "Parental Origin of Nondisjunction", in Trisomy 21 (Down's syndrome) Research Perspectives, edited by F. de la Cruz and Park S. Gerald (Baltimore: University Park Press, 1981).

62. C. E. Benda The Child with Mongolism (New York: Grune and Stratton, 1960) p.195.

63. Ibid. pp.219-227.

64. R. F. Tredgold Tredgold's Text-book of Mental Deficiency (London: Baillière, Tindall & Cox, 1963) pp.288-295.

65. Op. cit. note 62 p.xiii.

66. L. S. Penrose "Note on Possibility of a new Treatment for Leukaemia", unpublished, 1961. Penrose File 98/1. Today, it is recognized that although people with Down's syndrome appear to be susceptible to certain diseases in childhood they also possess an unusual type of resistance to certain viruses - a consequence of the fact that the gene (AVG) for the putative interferon receptor is located on chromosome 21. This receptor is necessary to enable cells to respond to human interferon. When expressed in terms of the amounts of interferon necessary to reduce a number of virus plaques by half, trisomic cells have been found to be up to ten times more sensitive than normal cells. The paradoxical susceptibility of certain people with Down's syndrome to leukaemia and hepatitis has not been adequately explained. There is no research on the capacity of people with Down's syndrome to resist those viruses for



which specific receptors are known to exist. There is no information available as to whether these receptors are the same in trisomic cells as in normal cells. No investigations have been conducted to ascertain whether their numbers are increased or decreased, or whether their configurations are altered. In view of the greatly increased sensitivity of trisomic cells to interferon and the possibility that trisomic cells might not possess the CD4 molecule in the same form as normal cells, one might speculate that had Penrose been alive in the 1980s, he might have arranged for the transfusion of blood from people with Down's syndrome to those with AIDS as a possible therapy for the latter. For a discussion of the consequences of an additional AVG locus in Down's syndrome see Charles J. Epstein and Lois B. Epstein, "Gene Dosage Effects in Trisomy 21", in Trisomy 21. Research Perspectives, edited by Felix F. de la Cruz and Park S. Gerald (Baltimore: University Park Press, 1981).

67. W. Krivit and R. A. Good "The Simultaneous Occurrence of Leukaemia and Mongolism. Report of Four Cases", Amer. J. Dis. Child. 91 (1956): 218.

W. Krivit and R. A. Good (1957) "Simultaneous Occurrence of Mongolism and Leukaemia. Report of a Nationwide Survey" Amer. J. Dis. Child 94 (1957): 289.

A. M. Stewart, J. Webb and D. Hewitt (1958) "A survey of Childhood Malignancies", British Medical Journal i (1958): 1495.

68. L. S. Penrose op. cit. note 65.

In the nineteenth century, the 'degenerate' had not been considered to be necessarily inferior in all his characteristics. Indeed, both Lombroso and Nordau perceived creative genius as a type of degenerative psychosis.

For a further discussion of genius and degeneracy see C. Martindale "Degeneration, Disinhibition, and Genius" Journal of the History of Behavioural Sciences vii (1971): 177-182.

With the calls for mass sterilisation of 'degenerates' in the 1930s, attempts were made to dispel the belief that great talent and abnormality often went hand in hand. Tredgold, for example, wrote: "I have searched in vain for any close relationship between genius and insanity, and I believe the common statement that such exists to be a completely fallacious one. On the contrary, I think it will be found that the great majority of men and women of outstanding ability have been particularly sane, and have come of sane and healthy stocks. It is therefore a complete mistake to assume that the restriction of propagation by persons of neuropathic inheritance would mean the elimination of genius. A. F. Tredgold A Text-Book of Mental Deficiency Sixth edition (London: Baillière, Tindall & Cox, 1937)

pp. 522-523.

By the 1950s, the concept of the 'degenerate' was rarely advanced as a serious explanation for any human phenomenon, but the notion of the possession of "poor" protoplasm leading to biological inferiority including a lowered resistance to disease continued.

For the perception of degeneracy in the 1950s see R. D. Walter "What Became of the Degenerate?" Journal of the History of Medicine xi (1956): 428.

69. Ibid.

70. "Tom Pranker's letter to Penrose, 24th January 1961", unpublished. Penrose File 98/2.

71. Ibid.

72. "Penrose's letter to Witts, 27th June 1961", unpublished. Penrose File 98/2.

73. "Witt's letter to Penrose, 3rd July 1961", unpublished. Penrose File 98/2.

74. "Shapiro's letter to Penrose, 9th February 1961", unpublished. Penrose File 98/2.

75. "Letter to Pranker, 31st Jan. 1961", unpublished. Penrose File 98/2.

76. "Letter from Pranker to Penrose, 23rd Aug. 1961", unpublished. Penrose File 98/2.

77. H. Alvarez, R. Caldeyro Barcia "Puncture of the Uterus in the Fourth Month of Pregnancy" Surg. Gynec. Obstet. 91 (1950): 1.

78. Noted by P. Riis and Fritz Fuchs "Antenatal Determination of Foetal Sex" Lancet 2 (1960): 180.

79. Ibid. p. 182.

80. Mark Steele and Roy Breg "Chromosome Analysis of Human Amniotic-fluid Cells" Lancet 1 (1966): 383.

81. See Barbara Brookes Abortion in England 1900-1967 (London: Croom Helm, 1988) pp.133-156.

82. Ibid. p.155.

83. Editor "Medical Termination of Pregnancy" Lancet 1 (1967): 101.

84. Editor "Extrainsular Views on Abortion" Lancet 2 (1967): 205.

85. For a more detailed discussion of the libertarian criticism of the Mental Deficiency Laws in the 1950s see Clive Unsworth The Politics of Mental Health Legislation (Oxford: Clarendon Press, 1987) pp.253-258.

86. E. Goffman Asylums: essays on the social situation of mental patients and other inmates (New York: Doubleday, 1962).

87. J. Ryan The Politics of Mental Handicap (London: Free Association Books, 1987).

88. M. H. Pappworth Human Guinea Pigs (London: Routledge & Kegan Paul, 1967).

89. C. Benda op. cit. note 62 p.252.

90. It has been argued that an indirect consequence of the discovery of the extra chromosome in Down's syndrome and the accompanying availability of abortion for every mother who is found to have a foetus with Down's syndrome may have been not only to reduce the rights of the foetus with Down's syndrome, but also the baby, child and adult with Down's syndrome. Ian Kennedy, for example writes "the question of the treatment of the severely handicapped new-born child has to be seen in the context of the growing pressures for genetic screening within the womb, and selective abortion. We should think carefully about extending screening. We ought to consider what this says about our attitude to life and disablement."

It is difficult to assess the validity of Kennedy's remarks, but it is a fact that mothers in Britain not only have the right to have their foetuses with Down's syndrome aborted, but also appear to have the legal right to choose to have their new-born baby with Down's syndrome given a sedating drug, denied food and allowed to die of starvation. This 'right' has existed since the 5th November 1981 when Mr. Justice Farquhason indicated to the jury (in the trial of Dr. Arthur for the attempted murder of a three day old boy with Down's syndrome) that the boy was irreversibly disabled and that as he had been rejected by his parents Arthur's treatment of the baby in starving it to death was lawful. Earlier in the 1981, however, another judge had ruled that a baby with Down's syndrome must be given a life-saving operation even though the parents did not want the operation to take place.

Many parents, of course, want the best treatment possible for their offspring with Down's syndrome and their fear is that he will not be given the appropriate surgery that would increase his life-span because he has Down's syndrome. They do not have faith that cardiologists are only assessing, for example, the cardiac defect, but worry that their perception of

Down's syndrome will enter into their decision to operate.

Kennedy's ideas are expressed in I. Kennedy "Reflections on the Arthur Trial" New Society (1982) pp.13-15. Details of the failure of doctors to provide appropriate surgery in Down's syndrome can be seen in the D.S.A News Sept. 1986 p.18 and Feb. 1986 p.8.

### CONCLUSION

The relationship between the conception and treatment of Down's syndrome has been a complex, interactive one.

The initial concept of Down's syndrome following its formal identification in the middle of the nineteenth century was bound up with a faith that all members of mankind at whatever stage of development (however abnormal or degenerate) they were perceived to have reached could be civilized through training and education in an appropriate environment. In order to achieve this reformation of the 'degenerates' some believed at this time that admission to an asylum was advisable while others considered that the discipline of an asylum regime (even one operating largely without physical restraint) was not a progressive measure. The first formulations of a scientific concept of Down's syndrome occurred within this moral environmental framework, and the characterisations of people with the syndrome were made within the regulated institutional system.

These characterisations of people with Down's syndrome were largely unchanged by later medical superintendents who generally continued to direct similar authoritarian regimes which discouraged the emergence of individual personalities.

Richard Dugdale's family study of the 'Jukes', as well as the pathological studies of criminologists led some to believe that irreparable mental and physical inferiority was also associated with moral inferiority. This resulted in a more negative conception of people with handicaps, a diminution in their rights and their subjection to a harsher, more punitive form of treatment. For example in America some superintendents considered that it was acceptable to castrate the abnormal, and in Britain, Tredgold called for the compulsory confinement of people with handicaps in special institutions.

The British physician, Sutherland, argued that people with Down's syndrome were produced by 'immoral' parents who had been poisoned with syphilis, but not that abnormality was necessarily associated with immorality. The testing of his theory on the spinal fluid of people with Down's syndrome following the development of appropriate techniques in the first years of the twentieth century, was accomplished without difficulty because of the way in which the authorities had come to perceive such patients.

Raised maternal age, as opposed to raised paternal age, was believed by some early investigators to be associated with the occurrence of Down's syndrome because the knowledge that there was generally only one person with Down's syndrome in the whole family coupled with the fact that the condition was known to be

congenital made the explanation that it was caused through some factor acting during pre-natal development more plausible than heredity.

The results of twin studies in the 1920s suggested that Down's syndrome was caused prior to conception, and that the father was therefore as likely to be responsible for the occurrence of a child with Down's syndrome as the mother.

The belief in the existence of an environmental causative factor in mental handicap led, however, to attempts to show that only raised maternal age and not raised paternal age was of importance in causation. The proof of the involvement of the environment in causation was of importance because of its relevance to the question of the compulsory sterilisation of the 'feeble-minded'.

The discovery in 1959 that Down's syndrome was the result of an additional chromosome allowed for pre-natal determination of the condition and made the abortion of affected fetuses possible. The perception of people with handicaps at the time was, however, at an all time high as a result of the political reorientation of the 1960s, and the permissibility of their abortion in 1967 in Britain was related, in part, to the recognition that some women and families could not withstand the strain of any baby, particularly one with special needs. The clause pertaining to handicapped children was not simply an eugenic measure.

The history of Down's syndrome is also a striking demonstration of the power of professional individuals to determine both the widespread conception and treatment of those who were viewed as legitimate subjects for their 'expert' judgement.

While the conceptions of Down's syndrome by the authorities in this thesis were undoubtedly a product of contemporary scientific theories, they also strongly reflected the individual investigator's personal beliefs, and, in particular, whether they wished to incorporate or exclude those people who were less independent and more in need of help, from mankind and from the rights of membership which this conveyed during their period.

There was always more than one particular stance which could be adopted over any scientific question and whichever one an investigator chose in formulating his theory of the occurrence of Down's syndrome tended to be accepted as the correct explanation for many years to come.

Down's portrayal of the person with mental handicap as a 'mongol', who had failed to reach the normal standards of human development was a direct consequence of his desire to support the case of monophyletism and weaken the polyphyletic defence of slavery. His explanatory framework influenced Crookshank decades later, but in contrast to Down, he chose to



theoretically separate people with Down's syndrome from strong and powerful people; a reflection, in part, no doubt, of the contemporary increase in the institutional segregation of the 'mentally deficient' which followed the 1913 Act.

Kerlin's and Wilmarth's hereditarian conception of imbecility which linked together mental and moral inferiority was a result of Kerlin's choice to minimise the importance of free-will in all human behaviour. Similarly, Mitchell's contemporary complete separation of criminality and idiocy was a consequence of his belief that the intelligent and healthy were also quite capable of wrong-doing. The influence of Kerlin's beliefs and theories in both America and Britain through his major role in 'The Association of Medical Officers of American Institutions for Idiots and Feeble-minded Persons' and its journal has already been described in detail.

Lionel Penrose's early work continues to be influential today. His scientific and statistical analyses were strongly related to what he wished to demonstrate, but these have been accorded great weight even by today's historians because of their apparently value-free nature.

The fact that the vast majority of influential investigators of Down's syndrome during the period which

this thesis covers, were Anglo-Saxon, middle-class, male physicians has undoubtedly also played an important part in the conceptions of the characteristics, causes and treatments of the condition. The belief in the need to repress and dominate this 'undeveloped' group; the analogy between the person with Down's syndrome and the Mongolian or Kalmuc race; the notion of a relationship between the nervous woman or the poor person and the occurrence of an individual with handicaps; and the ready elimination of raised paternal age as a possible risk factor for the syndrome are all examples of conclusions which would have been unlikely to have been reached by a female investigator from an ethnic minority. Kate Brousseau's work illustrates this point; she was more sceptical than her male colleagues generally were about the theories which only looked to weaknesses in women for the cause of Down's syndrome. Her recognition that neither raised maternal, nor raised paternal age was the cause of Down's syndrome was one of the most important antecedents in Bleyer's formulation of his theory that Down's syndrome occurred as a result of non-disjunction or a translocation.

However, it has also been shown that some of the physicians, for example Howe, Down and Mitchell, who today would be seen as 'racist', 'sexist' and 'snobbish', considered that they were supporters of the weak and down-trodden, and that it was their Christian duty to treat them with their conception of kindness.

In this crucial respect, their work differed from those physicians, who were sometimes no more prejudiced than they, but who only gave their support to the powerful, and were quite ruthless in the cruel treatment which they advocated for handicapped people like those with Down's syndrome.

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Consulted at Surrey Record Office, Surrey County Hall, Kingston upon Thames.

The material has been catalogued and the relevant reference numbers have been included below.

#### Annual Reports

They include some cases who had reported to have greatly improved while at Park House, Essex Hall or the Royal Earlswood Asylum.

Bound volumes -

1. 1849-1869 volume. 392/1/2/1

First annual report 1849 Park House and Essex Hall.  
Second annual report 1850 Park House and Essex Hall.  
Third annual report 1851 Park House and Essex Hall.  
Fourth annual report 1853 Park House and Essex Hall.  
Fifth annual report 1854 Park House and Essex Hall.  
Sixth annual report 1855 Park House and Essex Hall.  
Seventh annual report 1856 Royal Earlswood Asylum and Essex Hall.  
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Aetiological data relating to 496 cases have been analysed in this thesis. These were drawn from:

Female Case book. Original Set. General Register I 1859-1869 392/11/4/1.

Duplicate Set (Female) 1849-1872 392/11/4/5.

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### Details of cases, 1870-1878

#### Males with Down's syndrome

2, 13, 19, 20, 32, 61, 63, 133, 144, 150, 154, 166, 202, 209, 211, 214, 272, 317, 325, 385, 413, 489.

#### Females with Down's syndrome

121, 162, 213, 232, 255, 306, 339.

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